FINAL SITE INSPECTION REPORT
FOR THE
STONEY CREEK TECHNOLOGIES SITE
TRAINER, DELAWARE COUNTY, PENNSYLVANIA

Prepared for:

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EPA Contract No.: EP-S3-10-05
Technical Directive Document No.: WS03-10-10-002
Document Control No.: W0032.1A.00244

February 14, 2012

PFE ORIGINAL

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Not responsive due to revised scope

Prepared by: [redacted] Date: February 8, 2012

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Not responsive due to revised scope

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1.0 INTRODUCTION

Under the Superfund Technical Assessment and Response Team (START) IV Contract No. EP-S3-10-05, Technical Direction Document (TDD) No. WS03-10-10-002, the U.S. Environmental Protection Agency (EPA) Region 3 tasked Weston Solutions, Inc. (WESTON®) to conduct an Integrated Site Assessment of the Stoney Creek Technologies (SCT) site located in Trainer, Delaware County, Pennsylvania. EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies the site as the Stoney Creek Technologies site, EPA Identification No. PAN000306567.

This Site Inspection (SI) was conducted in accordance with EPA's "Guidance for Performing Site Inspections Under CERCLA" (Reference [Ref.] 1). The purpose of this SI was to evaluate analytical data for the site to determine the need for additional action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The scope of the SI for the SCT site included a review of available site information, a compilation and evaluation of potential targets, a site reconnaissance, sampling, an evaluation of the analytical data, and the calculation of a preliminary Hazard Ranking System (HRS) score. The preliminary HRS score completed for this site is predecisional and, therefore, should not be released to the public. The preliminary HRS evaluation and calculation for this site has been submitted to EPA Region 3 as a separate, confidential document.

This report contains Section 1.0, the introduction, which presents the purpose of the SI and provides the organization of the report. This report summarizes site background information in Section 2.0; describes the source characteristics in Section 3.0; discusses the groundwater and surface water migration pathways in Sections 4.0 and 5.0, respectively; discusses the soil and air migration pathways in Section 6.0; and presents summaries and conclusions in Section 7.0. References are cited in Section 8.0. All figures are provided in Appendix A. Analytical data summary tables for samples collected as part of this SI are provided as Appendix B. A photographic documentation log is provided as Appendix C. The complete EPA Contract Laboratory Program (CLP) data packages are included with this report as an attachment.

2.0 SITE BACKGROUND

This section describes the site's location, operational history, and waste characteristics.

2.1 LOCATION

The SCT site is located at 3300 West 4th Street in Trainer, Delaware County, Pennsylvania, as shown on Figure 1 in Appendix A (Ref. 2). The geographic coordinates of the approximate center of the site are 39.829444 north latitude and -75.399722 west longitude (Ref. 3). As shown on Figures 1 and 2 in Appendix A, the site is located in a mixed residential and industrial area. The site is bordered to the north by Conrail railroad tracks of the Northeast Corridor, beyond which are an automobile junkyard and a rail yard for the temporary storage of freight cars; to the east by a kitchen cabinet distributor; to the south by Post Road/4th Street, across which are residential homes, additional commercial and industrial facilities, and an oil refinery; and to the west by an automobile parts and service station.

2.2 SITE DESCRIPTION

The SCT site is situated on approximately 13 acres of land bisected on the western portion of the property by Stoney Creek (Ref. 3). The process area, which includes office buildings, warehouses, a boiler house, a wastewater treatment plant (WWTP), and more than 250 above ground storage tanks (AST), encompasses 11 acres on the eastern portion of the property. The process area is predominantly covered with concrete or asphalt. The 2 acres located on the west side of Stoney Creek were used by SCT as an equipment boneyard. Remnants of tanks and equipment are scattered throughout this area. This area is predominantly covered by concrete or asphalt with anywhere from a thin layer to 6-8 inches of silt/sediment on top. Along the western bank of Stoney Creek are approximately 1,500 to 2,000 cubic yards of construction debris and fill that originated from improvements made to the plant prior to 1990, mainly to on-site roadways (Ref. 4). Stoney Creek flows approximately 0.5 mile from the site before it discharges into the Delaware River. Figure 3 depicts the layout of the site.

2.3 OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

Stoney Creek Technologies, Inc., a manufacturer of oil and fuel additives and corrosion inhibitors, purchased the Trainer facility from Witco Corporation (Witco) in 1998. Witco and its predecessor, Bryton Chemical Company, had been manufacturing similar products through petroleum sulfonation since 1951 when Bryton Chemical Company purchased the property from Lehigh Chemical Company. The type of manufacturing that Lehigh Chemical Company performed at the site is not known. Around the time that Witco purchased the facility from Bryton Chemical Company in 1973, Witco also purchased additional tracts of land on the western side of Stoney Creek surrounding the original processing area to make-up what is now known as the SCT site. Various commercial, industrial, and chemical manufacturing operations were conducted on these additional tracts of land, including plastics fabrication, concrete products, auto sales and service, retail petroleum sales, paint sales, and steel tank manufacturing (Ref. 4).

The chemical manufacturing operations conducted by Witco, and then subsequently by SCT, included the production of calcium alkylbenzene sulfonates (LIMOH), magnesium akylbenzene sulfonates (MAG), and severe atmospheric corrosion inhibitors (SACI). LIMOH and MAG were produced as additives to oil, and SACI was produced as a corrosion inhibitor. Major components of plant production included the manufacture of sulfonic acid and heptane sulfonic acid (sulfonation); carbonation (with calcium or magnesium carbonates); filtering; and centrifuging. Solvents such as heptanes, mineral spirits, and alcohols were utilized in product manufacture (Ref. 4).

Solvents used in the manufacturing process were recovered from liquid waste in a solvent recovery process (located in the MAG process area) and reused. Solid waste generated from filtering and centrifuge operations were stored on site in several areas. The solid waste was mixed with fly ash prior to off-site disposal. Raw materials used in plant production were delivered to the site by tanker truck or rail car and then transferred into ASTs (Ref. 4).

The facility operated an on-site WWTP, which was constructed by Witco in the early 1970s. The WWTP received process wastewater and storm water collected from trenches and drains located throughout the plant. The WWTP consisted of an oil-water separator, holding tanks for pH adjustment, and acid and caustic storage. Treated water was discharged to the public sanitary sewer. Prior to 1970, treated water was discharged to Stoney Creek via a former WWTP that had been constructed in 1957 (Ref. 4).

2.4 PREVIOUS INVESTIGATIONS

On March 1, 1985, a Site Discovery was initiated for the site. In June 1986, a Preliminary Assessment (PA) was conducted of the site by the Pennsylvania Department of Environmental Protection (PADEP) on behalf of EPA Region 3. Based on the PA, the site was given a low priority for additional actions under CERCLA (Ref 4).

In June 1991, NUS Corporation, on behalf of EPA Region 3, conducted a second PA of the site. Based on this PA, the site was assigned a "No Further Remedial Action Planned" designation (Ref. 4).

In June 1997, Fluor Daniels GTI, Inc. conducted a Phase I Environmental Site Assessment (ESA) of the property on behalf of Witco to identify and document current and historical operations and environmental conditions and to identify areas of concern (AOC) on the site and surrounding properties. The Phase I identified 25 on-site AOCs and three off-site AOCs (Ref. 4).

In September 1997, Fluor Daniels GTI, Inc. conducted a Remedial Investigation (RI) of the property on behalf of Witco. The RI included the advancement of 175 soil borings; the collection of 400 surface and subsurface soil samples; the installation of 10 shallow (overburden) monitoring wells, 14 temporary shallow (overburden) wells, and four bedrock monitoring wells; the surveying and gauging of all monitoring wells; the collection of groundwater samples; the collection of two sediment samples from Stoney Creek; and a limited geophysical survey (Ref. 5).

Soil samples were analyzed for volatile organic compounds (VOC), base neutrals (i.e., semivolatile organic compounds [SVOC]), polychlorinated biphenyls (PCB), metals, and sulfates. Soil analytical results were compared to Surface and Subsurface Non-residential Medium Specific Concentrations (MSC) and generic values for soil overlying Non-use Aquifers in accordance with Pennsylvania Act 2 Regulations. The RI concluded that collected soil samples did not exceed applicable criteria. Groundwater samples were analyzed for VOCs, SVOCs, and total and dissolved metals. Groundwater analytical results were compared to Non-use Aquifer, Non-residential Groundwater MSCs. The RI concluded that collected groundwater samples did not exceed applicable criteria. Sediment samples were analyzed for total petroleum hydrocarbons (TPH), gasoline range organics (GRO), SVOCs, and priority pollutant metals. Sediment analytical results were compared to EPA Effect Range Medium (ERM) Values. The RI concluded that concentrations of quantifiable SVOCs and metals were greater in the sediment sample collected upstream of the site than in the sample collected downstream of the site (Ref. 5).

The RI also characterized and delineated five AOCs: LIMOH Process Area, MAG Process Area, SACI process Area, Main Rail Sidings, and the former WWTP, where TPH concentrations exceeded the RI delineation of 10,000 milligrams per kilogram (mg/kg) in soil (Ref. 5).

Based on the RI conducted by Fluor Daniels GTI, Inc. on behalf of Wicto, Witco filed a Notice of Intent to Remediate (NIR) to PADEP in June 1998. The NIR was acknowledged by PADEP in July 1998. Additional activities conducted by Witco as part of the NIR were to conduct quarterly groundwater sampling to confirm that applicable MSCs (Non-use, Non-residential Groundwater MSCs) were being attained; to confirm that substances did not exceed Used Aquifer MSCs within 1,000 feet of the property boundary; and to confirm that constituents in groundwater would not migrate to surface water bodies at concentrations that would cause exceedances of published surface water quality standards (Ref. 6).

During the groundwater sampling events, light non-aqueous phase liquid (LNAPL) was observed in one monitoring well in the SACI process area. In September 1998, an LNAPL recovery system was installed in this area. Total fluids were continuously removed for one month for a total of approximately 300 gallons of liquid removed, including an estimated 1 gallon of LNAPL. Following the LNAPL removal in the SACI area, additional groundwater gauging was conducted to determine the quantity of any remaining LNAPL. It was determined that approximately 0.03 feet of LNAPL remained in the groundwater in the SACI area and extended over a maximum horizontal area of 30 feet (Ref. 6).

In May 1999, Witco submitted a Final Report to PADEP demonstrating that the site met the criteria for attainment under Act 2 for release of liability (Ref. 6).

On April 12, 2007, EPA Region III was notified that the SCT facility had declared bankruptcy and that chemical substances remained on site, including approximately 3 million gallons of flammable or combustible chemicals that posed a threat of release and fire, and more than 11 million pounds of total chemical production inventory that included flammable, combustible, and corrosive chemicals. Other chemical materials were also present in drums, small containers, open containers, water treatment vessels, fuel vessels, piles, trenches, drains, and other places. Additionally, several mounds of the fly ash material used to neutralize the solid waste generated from the filtering and centrifuge operations also remained on site. In August 2007, EPA issued a Unilateral Administrative Order to the potentially responsible party (PRP) to remove the on-site hazardous materials. EPA provided SCT the opportunity to remove the chemical inventory from the site; however, EPA determined that SCT was not adequately addressing the potential threat at the facility. In October 2008, EPA initiated actions relating to the removal of chemical inventory from the site in order to reduce the potential threats. To date, more than 2,000,000 gallons of bulk chemical inventory from on-site tanks, drums, and in pipelines have been removed for off-site disposal. EPA continues to clean out and consolidate material remaining in tanks and pipelines for off-site disposal (Ref. 7).

3.0 SOURCE CHARACTERISTICS

This section describes the sources associated with the site and provides information on the source sampling locations and analytical data.

3.1 SOURCE DESCRIPTION

The two sources associated with the site are contaminated soil, as documented by the presence of hazardous substances in on-site soil samples at concentrations greater than three times the concentrations identified in the background soil samples, and the piles of fly-ash material. Sampling locations and analytical results are documented in the following sections.

3.2 SAMPLING LOCATIONS

In October 2010, EPA contractors, WESTON, as part of the Integrated Site Assessment, conducted a site-wide subsurface soil investigation to determine the extent of contamination at the site. A total of 56 soil borings were advanced throughout the site. WESTON collected a total of 27 samples from the 56 soil borings. The samples were collected at locations that had elevated VOC readings on a flame ionization detector (FID). The majority of the samples were analyzed for TPH, GRO, diesel range organics (DRO), and methanol. Seven of the 27 samples, including one duplicate, were also analyzed for Target Compound List (TCL) VOCs, SVOCs, PCBs, pesticides, and Target Analyte List (TAL) inorganics by a Contract Laboratory Program (CLP) laboratory.

In August 2011, EPA contractors, WESTON, as part of this Integrated Site Assessment, collected 18 surface soil samples (0-12 inches below ground surface [bgs]), including two duplicate samples, two subsurface soil samples (18-36 inches bgs), and two waste samples of the fly-ash material as part of the SI sampling event, including two background soil samples. Subsurface soil samples could not be collected from the boneyard on the western portion of the site as planned. The entire area is covered by asphalt or concrete with anywhere from a thin layer to 6-8 inches of soil/sediment on top. Samples were collected of the overlying silt/sediment. Additionally, subsurface soil samples could not be collected along the rail siding with a hand auger because of the thick covering of rip-rap rock over the entire area.

Table 1 below, provides sample identifiers, matrix, sample depth, sample dates, and sample location descriptions. Source sample locations are shown on Figure 4, Source Sample Location Map, In Appendix A.

TABLE 1

SOURCE SAMPLING SUMMARY

Sample Identifiers	Matrix	Sample Depth (inches)	Date	Sample Location Description
SCT-SB-02-008	Soil	30-55	10/21/10	MAG process area; northeast of oleum tanks by T237.
SCT-SB-02-009	Soil	6-24	10/20/10	LimOH process area; between T528 and T539.
SCT-SB-02-018	Soil	3-35	10/21/10	MAG process area; between T127 and T140.
SCT-SB-03-028	Soil	6-30	10/25/10	SACI process area; between T552 and T505.

Sample Identifiers	Matrix	Sample Depth (inches)	Date	Sample Location Description
SCT-SB-03-128	Soil	6-30	10/25/10	Duplicate sample of SCT-SB-03-028.
SCT-SB-24-041	Soil	48-60	10/25/10	SACI process area; northwest corner of garage.
SCT-SB-03-054	Soil	14-36	10/27/10	SACI process area; northwest corner of T955 near fenceline.
SCT-SS-01	Soil	0-6	8/11/11	Background surface soil sample collected along edge of tree line at 7th and Chestnut Street.
SCT-SB-01	Soil	18-36	8/11/11	Background subsurface soil sample collected along edge of tree line at 7th and Chestnut Streets.
SCT-SS-03	Soil	0-6	8/11/11	Boneyard on western portion of site adjacent to three large tanks laying down on their side.
SCT-SS-04	Soil	0-6	8/10/11	Center of boneyard on the western portion of the site near discarded hoppers.
SCT-SS-05	Soil	0-6	8/10/11	Boneyard; adjacent to large tank.
SCT-SS-06	Soil	0-6	8/10/11	Duplicate of SCT-SS-06.
SCT-SS-07	Soil	0-6	8/10/11	Low-lying area in boneyard in area where the asphalt was broken through to underlying soil.
SCT-SS-08	Soil	0-12	8/11/11	Boneyard in sand pile located in the far western corner.
SCT-SS-09	Soil	0-6	8/10/11	Boneyard; in pile of drum carcasses.
SCT-SS-10	Soil	0-12	8/10/11	Debris pile along the southern portion of Stoney Creek.
SCT-SB-10	Soil	12-18	8/10/11	Collected at a depth of 1 foot below sample SCT-SS-10.
SCT-SS-11	Soil	0-6	8/10/11	Debris pile along the northern portion of Stoney Creek.
SCT-SS-12	Soil	0-6	8/11/11	Adjacent to an open 8 inch drain pipe near Tank 955.

Sample Identifiers	Matrix	Sample Depth (inches)	Date	Sample Location Description
SCT-SS-13	Soil	0-12	8/11/11	In vicinity of transformers near the fenceline along 4th Street.
SCT-SS-14	Soil	0-6	8/11/11	Site surface water drainage system trench near adjacent to warehouse.
SCT-SS-15	Soil	0-12	8/10/11	Background; courtyard outside offices.
SCT-SB-15	Soil	18-36	8/10/11	Background subsurface soil sample collected at SCT-SS-15 location.
SCT-SS-16	Soil	0-6	8/10/11	Rail siding below 6-8 inches of rock.
SCT-SS-17	Soil	0-6	8/10/11	Rail siding below 6-8 inches of rock.
SCT-SS-18	Soil	0-6	8/11/11	Duplicate of SCT-SS-08.
SCT-WS-01	Waste	Grab	8/11/11	Fly-ash material collected from dilapidated roll-off.
SCT-WS-02	Waste	Grab	8/11/11	Fly-ash material collected from covered roll-off.

3.3 ANALYTICAL RESULTS

All surface, subsurface, and waste samples collected at the SCT site were analyzed under EPA's CLP in accordance with the EPA CLP Statement of Work CLP SOW SOM01.2 for TCL VOCs, TCL SVOCs, PCBs, pesticides, and ISOM01.2 ICPAES for TAL inorganics and cyanide. Analytical summary tables for results detected above the contract-required quantitation limits (CRQLs) are provided in Appendix B. The tables also reflect the concentrations of "elevated" compounds or elements that were detected in soil samples three times above the concentrations detected in the background samples (SCT-SS-01 and SCT-SS-15 for surface soil samples, and SCT-SB-01 and SCT-SB-15 for subsurface soil samples). Soil samples containing compounds or elements that were not detected in the background sample above the CRQL are "elevated" if they were detected at a concentration equal to or greater than the background sample's CRQL.

Sample result qualifiers, where applicable, are included in the analytical summary data tables; however, they are not included in the below discussion of analytical results. The laboratory analytical data packages are included as an attachment to this report.

The soil analytical results were compared to EPA Regional Screening Levels (RSLs) for industrial soil. EPA RSLs are generic risk-based concentrations used for site "screening". RSLs are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. RSLs combine human health toxicity values with standard exposure pathway (i.e, inhalation, dermal, and ingestion) factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered by EPA to be health protective of human exposures, over a lifetime. RSLs do not address impacts to ecological targets. RSLs are included here for comparison purposes only; they are not legally enforceable standards (Ref. 8).

3.3.1 Surface soil

As shown in Table 1 in Appendix B, VOCs were not detected in the surface soil samples above the CRQLs with the exception of methylcyclohexane at a concentration of 5.7 micrograms per kilogram (µg/kg) in sample SCT-SS-16, collected along the rail siding (Refs. 9 and 10). There is no RSL for methylcyclohexane (Ref. 8).

As shown in Table 1 in Appendix B, SVOCs were not detected above CRQLs in the majority of the surface soil samples (Refs. 9 and 10). However, samples SCT-SS-03, SCT-SS-16, and SCT-17 contained the following SVOCs at elevated concentrations:

- naphthalene up to a maximum concentration of 1,200 µg/kg,
- phenanthrene up to 3,100 µg/kg,
- acenaphthlene up to 1,600 µg/kg,
- fluoranthene up to 4,500 µg/kg,

- pyrene up to 3,500 µg/kg,
- benzo(a)anthracene up to 890 µg/kg,
- chrysene up to 850 µg/kg,
- benzo(b)fluoranthene up to 820 µg/kg,
- benzo(k)fouranthene up to 540 µg/kg,
- benzo(a)pyrene up to 640 µg/kg,
- indeno(1,2,3-cd)pyrene up to 540 µg/kg, and
- benzo(g,h,i)perlyne up to 520 µg/kg.

As illustrated in Table 1 in Appendix B, detected SVOCs did not exceed applicable RSLs. PCBs and pesticides were not detected in surface soil samples at concentrations exceeding the CRQLs (Refs. 9 and 10).

Table 2 in Appendix B summarizes the inorganics that were detected in surface soil samples (Refs. 11 and 12). Inorganics that were detected at elevated concentrations include:

- arsenic at a maximum concentration of 88.7 milligram per kilogram (mg/kg),
- barium up to 3,420 mg/kg,
- chromium up to 195 mg/kg,
- copper to 343 mg/kg,
- lead up to 338 mg/kg,
- magnesium up to 23,700 mg/kg,
- manganese up to 1,710 mg/kg,
- nickel up to 65.8 mg/kg,
- silver up to 3.1 mg/kg, and
- zinc up to 963 mg/kg

The concentrations of arsenic and chromium detected in all the surface soil samples, including the background samples, exceeded the RSLs of 1.6 mg/kg and 5.6 mg/kg, respectively, for industrial soil. The more conservative hexavalent chromium RSL was used for comparison as there is no RSL for total chromium. No other detected analyte exceeded its respective industrial soil RSL.

3.3.2 Subsurface Soil

VOCs were not detected in the background subsurface soil samples (Refs. 9 and 10). As shown in Table 3 in Appendix B, VOCs detected at elevated concentrations include:

- acetone up to a maximum concentration of 250 µg/kg,
- carbon disulfide at a concentration of 6.5 µg/kg,
- cis-1,2-dichloroethene at a concentration of 16 µg/kg,
- cyclohexane up to 16,000 µg/kg,
- benzene up to 870 µg/kg,
- trichloroethene up to 10 µg/kg,
- methylcyclohexane up to 71,000 µg/kg,
- toluene up to 61 µg/kg,
- tetrachloroethene up to 26 µg/kg,
- ethylenebenzene up to 55 µg/kg,
- total xylenes up to 8,600 µg/kg, and
- isopropylbenzene up 130 µg/kg.

As illustrated in Table 3 in Appendix B, concentrations of VOCs in the subsurface soil samples did not exceed applicable RSLs.

SVOCs were not detected in the background subsurface soil samples (Refs. 9 and 10). As shown in Table 3 in Appendix B, SVOCs detected at elevated concentrations include:

- naphthalene up to a maximum concentration of 800 μg/kg,
- 2-methylnaphthalene up to 1,600 μg/kg,
- fluorene up to 200 μg/kg,
- phenanthrene up to 400 μg/kg,
- fluoranthene up to 980 μg/kg,
- pyrene up to 1,700 μg/kg,
- benzo(a)pyrene up to 420 μg/kg,
- indeno(1,2,3-cd)pyrene up to 480 μg/kg, and
- benzo(g,h,i)perlyne up to 960 μg/kg.

As illustrated in Table 3 in Appendix B, detected SVOCs did not exceed applicable RSLs. PCBs and pesticides were not detected in subsurface soil samples at concentrations exceeding the CRQLs (Refs. 9 and 10).

Table 4 in Appendix B summarizes the inorganics that were detected in surface soil samples (Refs. 11 and 12). Inorganics that were detected at elevated concentrations include:

- barium up to a maximum concentration of 903 mg/kg,
- cadmium up to 1.4 mg/kg,
- calcium up to 43,500 mg/kg,
- chromium up to 277 mg/kg,
- potassium up to 3,270 mg/kg,
- selenium up to 4.4 mg/kg,
- sodium up to 2,030 mg/kg, and
- vanadium up to 144 mg/kg.

The concentrations of arsenic and chromium detected in all the subsurface soil samples, including the background samples, exceeded the RSLs for industrial soil of 1.6 mg/kg and 5.6

mg/kg, respectively. The more conservative hexavalent chromium RSL was used for comparison as there is no RSL for total chromium. No other detected analyte exceeded its respective industrial soil RSL.

3.3.2 Waste Samples

As shown in Table 5 in Appendix B, VOCs were not detected in waste sample SCT-WS-01 (Ref. 9). VOCs detected in sample SCT-WS-02 above CRQLs include methylcyclohexane at a concentration of 28,000 μg/kg, 1,2-dichloropropane at 10 μg/kg, and isopropylbenzene at 9.2 μg/kg. SVOCs, PCBs, and pesticides were not detected above the CRQLs in the waste samples (Ref. 9).

Table 5 in Appendix B also provides a summary of inorganics detected in the waste samples (Ref. 12). Of note, arsenic was detected at a concentration of 42.4 mg/kg, chromium at a concentration of 49 mg/kg, and mercury at a concentration of 5.5 mg/kg.

3.4 SOURCE CONCLUSIONS

Analytical results of on-site surface and subsurface soil samples document the presence of VOCs, SVOCs, and inorganics at elevated concentrations. Additionally, waste samples collected from the fly-ash material contained VOCs and inorganics. With the exception of the concentrations of arsenic and chromium in all the surface and subsurface soil samples, including the background samples, and the concentration 1,2-dichloropropane in the one waste sample, concentrations of contaminants did not exceed applicable RSLs for industrial soil.

4.0 GROUNDWATER MIGRATION PATHWAY

This section describes the site's hydrogeologic setting, the targets associated with the groundwater migration pathway, and conclusions that can be made for the groundwater migration pathway.

4.1 REGIONAL AND SITE GEOLOGY

Unconsolidated surface deposits in the vicinity of the site are mapped as Quaternary Trenton Gravel (also mapped as Spring Lake and Van Sciver Lake beds; and probably correlative to the Cape May Formation of southern New Jersey). The Trenton Gravel consists of gravely sand, cross-bedded sand and clay-silt beds. The gravel content in the vicinity of the site is reportedly low (Ref. 5).

Bedrock underlying the site consists of schists and gneisses of the Cambro-Ordovician Wissahickon Schist. The upper surface is typically marked by a few feet to tens of feet of weathered, residual gray, micaceous clayey soil. This natural soil zone becomes tighter and more granular with increasing depth, eventually grading into less weathered bedrock of coarse sandy texture with increasing rock fragments and then competent bedrock (Ref. 5).

The site is underlain by fill and unconsolidated deposits ranging in thickness from four (4) feet in the northwest portion of the site to 15 feet in the southeast corner of the site. Most of these deposits are highly weathered remnants of the Wissahickon Schist, and are comprised of dense to very dense silty clay and clayey silt, with mica and varying amounts of sand and small rock fragments. The unconsolidated deposits are underlain by gray gneissic and/granitic textured bedrock of the Wissahickon Schist. Some of the observed rock fragments exhibit some degree of schistocity although the overall texture is gneissic (Ref. 5).

4.2 REGIONAL AND SITE HYDROGEOLOGY

Regional groundwater is expected to flow towards the southeast and the Delaware River, generally following surface topography. Because the Delaware River serves as a regional discharge zone, the natural vertical head is expected to be upward with a component of flow from the bedrock to the shallow aquifer (Ref. 6).

Shallow groundwater occurs under unconfined conditions in the unconsolidated deposits throughout the western portion of the site. Groundwater in the unconsolidated deposits ranges from 2 to 10 feet below ground surface. In the vicinity of the site, groundwater flows from the northeast and southwest portions of the site towards, and eventually discharging into Stoney Creek. Groundwater encountered in the bedrock underlying the site occurs under semi-confined conditions, and flows from north to southwest across the site (Ref. 5).

4.3 GROUNDWATER TARGETS

As shown on Figure 6 in Appendix A, there are no groundwater targets within the 4-mile radius target distance limit (TDL) of the site on the Pennsylvania side of the Delaware River. Groundwater is not used for potable water within the TDL of the site (Refs. 13 and 14). All persons within a 4-mile radius of the site in Pennsylvania are supplied potable water by the Chester Water Authority (CWA) (Ref. 15). CWA obtains its drinking water supply from two surface water sources, (b) (9) [redacted]). Persons within a 4-mile radius of the site in New Jersey who may rely on groundwater for potable use are not considered potential targets as the Delaware River is assumed to be a regional hydrologic boundary.

4.4 SAMPLING LOCATIONS

On July 14, 2011, EPA contractors, WESTON, as part of this Integrated Site Assessment, installed two shallow (overburden) monitoring wells on site, one along the northern fenceline (MW-26) and one in the northeast corner of the site (MW-27). The wells were installed upgradient of process areas to determine background conditions of groundwater entering the site. The wells were installed to a depth of 10 feet bgs, consistent with the existing monitoring wells on site. When drilling monitoring well MW-26, refusal was encountered. This well never contained water and, therefore, was not sampled.

On July 26, 2011, five existing monitoring wells and one of the newly installed background wells were developed by purging three well volumes in each well. Monitoring well MW-05 contained less than 1 inch of LNAPL. A slight sheen was observed in wells MW-23 and MW-25. After purging, passive diffusion bag samplers were placed in each well for VOC collection.

On August 9, 2011, six groundwater samples were collected from the on-site monitoring wells. The samples were collected to determine if there has been a release of hazardous substances associated with source areas on the SCT site to groundwater. Table 2 provides sample identifiers, matrix, sample dates, and sample location descriptions. Groundwater sample locations are shown on Figure 5, Monitoring Well Location Map, in Appendix A.

TABLE 2

GROUNDWATER SAMPLING SUMMARY

Sample Identifiers	Matrix	Date	Sample Location Description
SCT-MW-05	Groundwater	8/9/11	Monitoring well No. 5; located along southwestern property boundary, south of existing WWTP.
SCT-MW-06	Groundwater	8/9/11	Monitoring well No. 6; located in the south corner of the property boundary.
SCT-MW-21	Groundwater	8/9/11	Monitoring well No. 21; located in the former WWTP lagoon.
SCT-MW-23	Groundwater	8/9/11	Monitoring well No. 23; located in the northern portion of the site, west of the SACI process area.
SCT-MW-25	Groundwater	8/9/11	Monitoring well No. 25; located in the central portion of the site west of the SACI process area.
SCT-MW-27	Groundwater	8/9/11	Background monitoring well in northeastern portion of site.

4.5 ANALYTICAL RESULTS

All on-site monitoring well groundwater samples collected at the SCT site were analyzed under EPA's CLP in accordance with the EPA CLP Statement of Work SOM01.2 for TCL VOCs, TCL SVOCs, PCBs, pesticides, and ISOM01.2 ICPAES for TAL metals and cyanide. Analytical summary tables for results detected above the CRQLs are provided in Table 6 in Appendix B. The tables also reflect the concentrations of "elevated" compounds or elements that were detected in groundwater samples three times above the concentrations detected in the background sample (SCT-MW-27). Groundwater samples containing compounds or elements that were not detected above the CRQL in the background sample are "elevated" if they were detected at a concentration equal to or greater than the background sample's CRQL. The laboratory analytical data packages are included as an attachment to this report.

The groundwater analytical data results were compared to EPA National Primary Contaminant Drinking Water Regulations Maximum Contaminant Levels (MCLs) (Ref. 18). EPA MCLs are legally enforceable standards that apply to public drinking water systems only. However, EPA MCLs are frequently used for evaluating and, in some cases, remediating contaminated sites; they are included in the data summary tables for comparison purposes only.

As shown in Table 6 in Appendix B, VOCs were not detected in the background sample or in samples SCT-MW-05, SCT-MW-06, and SCT-MW-21 above the CRQL (Ref. 19). The samples that contained concentrations of VOCs, SCT-MW-23 and SCT-MW-25, were collected from wells located in the SACI process area. VOCs that were detected at elevated concentrations in the groundwater samples that were also detected at elevated concentrations in the on-site soil samples, and therefore, their presence in groundwater considered to be at least partially attributable to source areas located on the SCT property, include:

- cis-1,2-dichloroethene up to a maximum concentration of 180 μg/L,
- cyclohexane up to 72 μg/L,
- benzene up to 430 μg/L,
- toluene up to 15 μg/L,
- ethylbenzene up to 17 μg/L,
- total xylenes up to 212 μg/L

As illustrated in Table 6 in Appendix B, the concentrations of cis-1,2-dichloroethene and benzene detected in samples SCT-MW-23 and SCT-MW-25, exceeded their respective MCLs of 5 μg/L.

As shown in Table 6 in Appendix B, SVOCs were not detected in the groundwater samples above CRQLs with the exception of phenol, which was detected in MW-25 at a concentration of 23 μg/L, and naphthalene, which was detected in both MW-23 and MW-25 at a concentration of

5.1 µg/L (Ref. 19). There are no MCLs for phenol and naphthalene. Phenol was not detected above CRQLs in the on-site surface or subsurface soil samples. Therefore, the presence of phenol in groundwater samples is not considered to be at least partially attributable to source areas located on the SCT property. PCBs and pesticides were not detected in the on-site monitoring well groundwater samples above CRQLs (Ref. 19).

As shown in Table 6 in Appendix B, with the exception of the concentrations of calcium and zinc that were detected in samples SCT-MW-23 and SCT-MW-06, respectively, inorganics in the groundwater samples were not detected at elevated concentrations (Ref. 20). Chromium was detected in several samples above the CRQL; however, the highest concentration of chromium, 328 µg/L, was detected in the background sample. The concentrations of several inorganics, barium, berrylium, chromium, and lead, detected in the samples exceeded their respective primary MCLs.

4.6 GROUNDWATER CONCLUSIONS

A release of VOCs and SVOCs to the groundwater migration pathway attributable to the site has been documented. Additionally, the concentrations of two VOCs (cis-1,2-dichlroethene and benzene) exceeded their applicable MCL. The highest concentrations of inorganics, particularly chromium, were primarily detected in the upgradient background sample indicating the potential presence of an off-site source(s).

Persons within a 4-mile radius of the site in Pennsylvania do not rely on groundwater for potable use. CWA provides potable water to all persons within a 4-mile radius of the site in Pennsylvania. CWA's water supply source is located outside of the TDL. Persons within a 4-mile radius of the site in New Jersey who may rely on groundwater for potable use are not considered potential targets as the Delaware River is assumed to be a regional hydrologic boundary. At the present time and based on the available information, particularly the lack of potential targets associated with the groundwater migration pathway, the groundwater migration pathway is not a significant pathway of concern.

Significant concentrations of VOCs detected in the groundwater may pose a potential vapor intrusion threat to the residential homes located south of the site across West 4th Street. Concentrations of benzene at 430 μg/L in a groundwater sample exceeded the EPA MCL of 5 μg/L. Additionally, concentrations of cis-1,2-dichloroethene were also detected above the MCL of 70 μg/L at 180 μg/L. However, these contaminants were detected in wells located in the north-central portion of the site. The most downgradient wells, MW-05 and MW-06, located along the southwestern edge of the property did not contain concentrations of VOCs above the CRQLs.

5.0 SURFACE WATER MIGRATION PATHWAY

This section describes the site's hydrologic setting, targets associated with the surface water migration pathway, and conclusions made for the surface water migration pathway.

5.1 HYDROLOGIC SETTING

Surface elevations in the general area are approximately 40 to 50 feet above mean sea level (MSL). Topography at the site slopes gently towards Stoney Creek, which flows south through the property bisecting the process and non-process areas. Surface drainage on the southeastern portion, non-process area of the site, flows towards and directly into Stoney Creek. Surface drainage within the controlled areas of the plant is intercepted by numerous catch basins which discharge to the facility WWTP (Ref. 5). The WWTP effluent discharges into Stoney Creek. Stoney Creek flows for approximately 0.5 miles before discharging into the Delaware River. The 15-mile downstream TDL is completed in the Delaware River. The Delaware River has a mean flow rate of 11,400 cubic feet per second as measured at a U.S. Geological Survey (USGS) gauging station in Trenton, New Jersey, approximately 40 miles upstream from the site (Ref. 21).

Land use within the drainage basin of Stoney Creek consists of commercial and industrial sites, including railyards and auto junkyards. These sites are potential upgradient sources of contamination to Stoney Creek. Contamination (emanating from upstream locations) has been observed on several occasions by former SCT employees (Ref. 5). The portion of the Stoney Creek bed near the intersection of the creek and Route 13 in the southern portion of the site is located in a 100-year flood plain (Ref. 8).

5.2 SURFACE WATER TARGETS

The Delaware River is fished for human consumption, via shore and boating, along the entire TDL. Species that inhabit the Delaware River that are targeted by anglers in Pennsylvania, New Jersey, and Delaware include largemouth bass, striped bass, American eel, channel catfish, white catfish, and white perch (Ref. 22). However, as a result of pollution, the Estuary states of New Jersey, Pennsylvania, and Delaware have all issued advisories for the consumption of fish. Many fish, including the American eel, white perch, channel catfish, striped bass and white sucker are subject to no-eat fish advisories in many parts of the Estuary. Consumption of other fish such as chain pickerel, largemouth bass, and bluefish are advised to be eaten in limited quantities (Refs. 23, 24, 25, and 26).

The Delaware River Estuary is a sensitive area identified under the National Estuary Program. In addition, a Federally-designated endangered species, the shortnose sturgeon, spends at least part of its life cycle in the Delaware River Estuary (Ref. 27). Additionally, the bog turtle, a Federally-designated threatened species, is known to occur in the southeastern corner of Pennsylvania (Ref. 28). Approximately 2.5 linear miles of wetlands are located along the 15-mile downstream TDL (Ref. 29).

No surface water intakes for potable water have been identified along the 15-mile TDL. The Delaware River is a tidally influenced surface water body at its confluence with Stoney Creek, with tidal influence reaching as far north as the vicinity of Morrisville, Pennsylvania and Trenton, New Jersey, located approximately 50 miles upstream of Stoney Creek's mouth (Ref. 21). The salt line is an estimation of where the 7-day average chloride concentration equals 250 ppm along the tidal Delaware River. The salt line naturally advances and retreats with each tidal cycle and with seasonal variations in freshwater flow. For most of the year, the salt line in the Delaware River is located between the Commodore Barry Bridge, approximately 1.25 miles upstream of Stoney Creek's mouth, and Reedy Island, located approximately 27 miles downstream of Stoney Creek (Ref. 27). Since the Delaware River salt line fluctuates within the downstream surface water pathway, no surface water intakes for potable water are suspected along the 15-mile TDL.

5.3 SAMPLING LOCATIONS

On August 10, 2011, EPA contractors, WESTON, as part of this Integrated Site Assessment, collected five surface water and sediment samples from Stoney Creek starting from the most downstream sample location. The samples were collected to determine if there has been a release of hazardous substances, associated with source areas on the SCT site, to the surface water pathway. Additionally, a water sample was collected from the holding basin of the WWTP. Table 3 provides sample identifiers, matrix, sample dates, and sample location descriptions. Surface water and sediment sample locations are shown on Figure 7, Surface Water and Sediment Sample Location Map, in Appendix A.

TABLE 3
SURFACE WATER AND SEDIMENT SAMPLING SUMMARY

Sample Identifiers	Matrix	Date	Sample Location Description
SCT-SW/SD-01	Surface water and Sediment	8/10/11	Background sample collected from Stoney Creek upstream of the site just below the railroad bridge.
SCT-SW/SD-02	Surface water and Sediment	8/10/11	Collected from Stoney Creek just downstream of the WWTP outfall.
SCT-SW/SD-03	Surface water and Sediment	8/10/11	Duplicate of SCT-SW/SD-02.
SCT-SW/SD-04	Surface water and Sediment	8/10/11	Collected from Stoney Creek approximately 50 feet downstream of SCT-SW/SD-02.
SCT-SW/SD-05	Surface water and Sediment	8/10/11	Collected from Stoney Creek at property boundary.
SCT-WW-01	Surface water	8/11/11	WWTP holding basin.

5.4 ANALYTICAL RESULTS

All surface water and sediment samples were analyzed by an EPA CLP laboratory in accordance with the EPA CLP Statement of Work SOM01.2 for TCL VOCs, TCL SVOCs, PCBs, pesticides, and ISOM01.2 ICPAES for TAL metals and cyanide. Analytical summary tables for results detected above the CRQLs are provided in Tables 7 and 8 in Appendix B. The tables also reflect the concentrations of "elevated" compounds or elements that were detected in the surface water and sediment samples three times above the concentrations detected in the background samples (SCT-SW-01 for surface water, and SCT-SD-01 for sediment). Surface water and sediment samples containing compounds or elements that were not detected above the CRQL in the background sample are "elevated" if they were detected at a concentration equal to or greater than the background sample's CRQL. The laboratory analytical data packages are included as an attachment to this report.

The surface water analytical results were compared to EPA National Recommended Water Quality Criteria (WQC) for aquatic life chronic exposure in freshwater (Ref. 30). EPA's national recommended WQC is the recommended water quality criteria for the protection of aquatic life and human health in surface water. These criteria are published pursuant to Section 304(a) of the Clean Water Act (CWA) and provide guidance for states and tribes to use in adopting water quality standards. The sediment analytical results were compared to EPA Region 3 Biological Technical Assistance Group (BTAG) freshwater screening benchmarks (Ref. 31). Region 3 BTAG screening benchmarks are media-specific ecotoxicological benchmarks that can be used in developing a screening level assessment. The benchmarks are to be used to screen exposure through routes other than food chain exposure.

VOCs and SVOCs were not detected above the CRQLs in any of the surface water samples collected from Stoney Creek (Ref. 19). The surface water sample collected from the WWTP holding basin contained phenol at a concentration of 29 μg/L and 4-methylphenol at a concentration of 13 μg/L. As shown in Table 7 in Appendix B, the highest concentrations of inorganics were detected in the upstream background sample, SCT-SW-01; inclusive of the sample collected from the WWTP (Ref. 11). No elevated concentrations of inorganics were detected in the downstream surface water samples. The concentrations of lead in all the surface water samples exceeded the lead WQC of 2.5 μg/L and the concentration of zinc in the upstream background sample exceeded WQC for zinc, 120 μg/L.

VOCs were not detected above the CRQLs in the sediment samples (Ref. 9). As shown in Table 8, the highest concentrations of SVOCs and inorganics detected in the sediment samples were in the most upstream sediment sample, SCT-SD-01, that was collected as a background sample to document the condition of Stoney Creek upstream of the site. SVOCs were not detected above the CRQL in the most downstream sediment sample, SCT-SD-05 (Ref. 9). As illustrated in

Table 8 in Appendix B, in general, the concentrations of SVOCs detected in all the sediment samples exceeded EPA BTAG screening benchmarks.

PCBs and pesticides were not detected in the surface water and sediment samples above the CRQLs (Ref. 9).

No elevated concentrations of inorganics were detected in the sediment samples (Ref. 12). In addition to a few concentrations of inorganics exceeding their applicable benchmark, the concentrations of copper, iron, lead, nickel, zinc, and cyanide in all the sediment samples exceeded their applicable benchmarks.

5.5 SURFACE WATER CONCLUSIONS

A release of hazardous substances attributable to the site to the surface water migration pathway has not been documented. SVOCs and inorganics detected in on-site soil samples at elevated concentrations were also detected in sediment samples collected from Stoney Creek; however, the highest concentrations of any contaminant detected was in the upstream background sediment sample, indicating the potential presence of an upstream source(s) affecting Stoney Creek. Therefore, at the present time and based on available information the surface water migration pathway is not a significant pathway of concern.

6.0 SOIL EXPOSURE AND AIR MIGRATION PATHWAYS

This section provides information regarding targets associated with the soil exposure and air migration pathways. The analytical results for soil samples collected at the site were discussed in Section 3.3.

6.1 PHYSICAL CONDITIONS

The SCT site is predominantly covered by asphalt, concrete, and building structures across the entire 13 acres. There is limited exposed soil throughout the property. Access to the site is restricted by a maintained fence on all sides.

6.2 SOIL AND AIR TARGETS

No schools, daycare centers, or residences are located on site and within 200 feet of documented soil contamination. Residences along Post Road/West 4th Street, which borders the site to the south, are located within 200 feet of the site property line and contaminated soil as documented in surface soil sample SCT-SS-13. Access to the site is generally restricted by a chain-link fence with the site being accessible along the creek bed. The estimated population within a 4-mile radius of the site is summarized below in Table 4 (Ref. 32). Table 5 lists the acreage of wetlands located within the 4-mile TDL (Ref. 29). No federal- or state-listed terrestrial endangered species have been indentified within a 4-mile radial distance of the site.

TABLE 4

ESTIMATED POPULATION WITHIN 4 MILES OF SITE

Radial Distance from Site (miles)	Population (number of persons)
0.00 - 0.25	550
0.25 - 0.50	2,975
0.50 - 1.0	7,429
1.0 - 2.0	18,213
2.0 - 3.0	34,271
3.0 - 4.0	46,706
Total	110,144

(Ref. 32)

TABLE 5

WETLAND ACREAGE WITHIN 4 MILES OF SITE

Radial Distance from Site (miles)	Wetlands (acreage)
0.00 - 0.25	0
0.25 - 0.50	0
0.50 - 1.0	2
1.0 - 2.0	145
2.0 - 3.0	694
3.0 - 4.0	2,408
Total	3,249

(Ref. 29)

6.3 SAMPLING LOCATIONS

In August 2011, EPA contractors, WESTON, as part of this Integrated Site Assessment, collected 18 surface soil samples (0-12 inches bgs), including two duplicate samples, from potential source areas on the SCT site. Since the surface soil samples were collected at a depth of less than 2 ft bgs, they were evaluated for potential soil exposure.

In general, VOCs were not detected at elevated concentrations in surface soil samples with the exception of methylcyclohexane detected in sample SCT-SS-16 at a concentration of 5.7 µg/kg. SVOCs, particularly PAHs, were detected at elevated concentrations in three of the eighteen surface soil samples SCT-SS-03, SCT-SS-16, and SCT-SS-17. Concentrations of VOCs and SVOCs in the surface soil samples did not exceed applicable RSLs for industrial soil. Numerous inorganics were detected at elevated concentrations in the surface soil samples. The concentrations of arsenic and chromium detected in all the surface soil samples, including the background samples, exceeded the RSLs of 1.6 mg/kg and 5.6 mg/kg, respectively, for industrial soil. No other detected analyte exceeded its respective industrial soil RSL. No air samples are known to have been collected from the SCT site.

6.3 SOIL EXPOSURE AND AIR MIGRATION PATHWAY CONCLUSIONS

Residences along Post Road/West 4th Street, which borders the site to the south, are within 200 feet of the site property line and within 200 feet of contaminated soil as documented in surface soil sample SCT-SS-13. Runoff from documented contaminated surface soil is expected to flow into the on-site storm water drainage system or into Stoney Creek. It is not anticipated that contaminated soil would migrate onto residential properties across Post Road/West 4th Street. Access to the site is restricted by a maintained fence. The soil exposure pathway is not a significant pathway of concern at this time. The air migration pathway is not a pathway of concern because a release to air is not suspected based on available data.

7.0 SUMMARY AND CONCLUSIONS

On April 12, 2007, EPA Region III was notified that the Stoney Creek facility had declared bankruptcy and that chemical substances remained on site, including approximately 3 million gallons of flammable or combustible chemicals that posed a threat of release and fire, and more than 11 million pounds of total chemical production inventory that included flammable, combustible, and corrosive chemicals. Other chemical materials were also present in drums, small containers, open containers, water treatment vessels, fuel vessels, piles, trenches, drains, and other places. Additionally, several mounds of the fly ash material used to neutralize the solid waste generated from the filtering and centrifuge operations also remained on site. In August 2007, EPA issued a Unilateral Administrative Order to the potential responsible parties (PRP) to remove the on-site hazardous materials.

In February 2009, EPA initiated removal actions at the site in response to the PRPs' failure to remove the site inventory of chemicals. To date, more than 2,000,000 gallons of bulk chemical inventory from on-site tanks, drums, and in pipelines have been removed for off-site disposal. EPA continues to clean out and consolidate material remaining in tanks and pipelines for off-site disposal. (Ref. 5)

Analytical results of on-site surface and subsurface soil samples and waste samples document the presence of VOCs, SVOCs, and inorganics at elevated concentrations. Groundwater samples collected from on-site monitoring wells document a release of VOCs and SVOCs attributable to on-site sources to the groundwater migration pathway.

At the present time, there are no primary targets associated with the site. Persons within a 4-mile radius of the site obtain drinking water from Chester Water Authority, whose water supply source is located outside the TDL. A release attributable to the site to the surface water migration pathway could not be documented. Concentrations of contaminant attributable to the site detected in the sediment samples did not exceed three times the concentrations detected in the upstream background sediment sample, indicating the potential presence of an upstream source(s) affecting Stoney Creek. There are no residences, schools, or day care centers located on site and within 200 feet of documented soil contamination. A release to air is not suspected based on available data.

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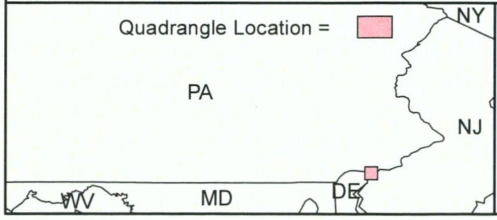
APPENDIX A

FIGURES

(8 Sheets)

Data Sources: USGS 7.5-Minute Series Topographic Quadrangles: Marcus Hook, Pennsylvania / New Jersey / Delaware, 1993	Stoney Creek Technologies Trainer, Delaware County, Pennsylvania

Quadrangle Location =



Coordinate System: WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

N

0 1,000 2,000
Feet

Figure 1
Site Location Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 12/20/2011

WESTON SOLUTIONS

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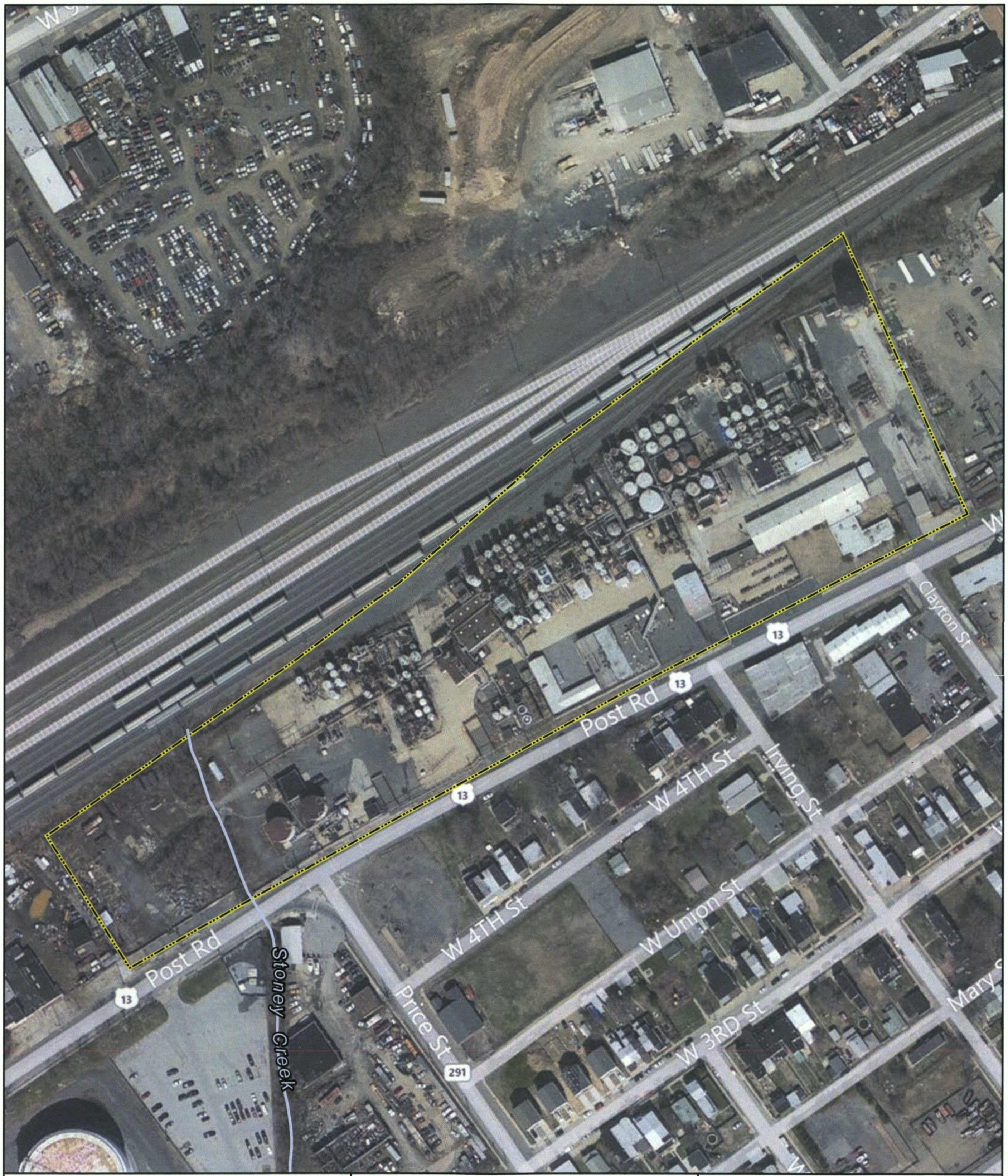
PFE ORIGINAL



Legend

StoneyCreek

Site Boundary

Data Sources:
Imagery: Bing Hybrid Image Service

Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

N

0 112.5 225
Feet

Stoney Creek Technologies
Trainer, Delaware County, Pennsylvania

Figure 2
Site Feature Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 12/20/2011

WESTON SOLUTIONS

File: Y:\EPA_Region_III\StoneyCreekTech\mxd\Site_Features.mxd, 12/20/2011 4:58:20 PM, zieglera

Legend

- Subsurface Soil Sample (SB)
- Soil Sample (SS)
- Wastewater Sample (WS)
- Waste Sample (WW)

Data Sources:
Basemap: Digitized data from Field mark-up
Imagery: Bing Imagery Service

Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

N

0 80 160
Feet

Stoney Creek Technologies, LLC
Trainer, Delaware County, Pennsylvania

Figure 4
Source Sampling Location Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 9/22/2011

WESTON SOLUTIONS

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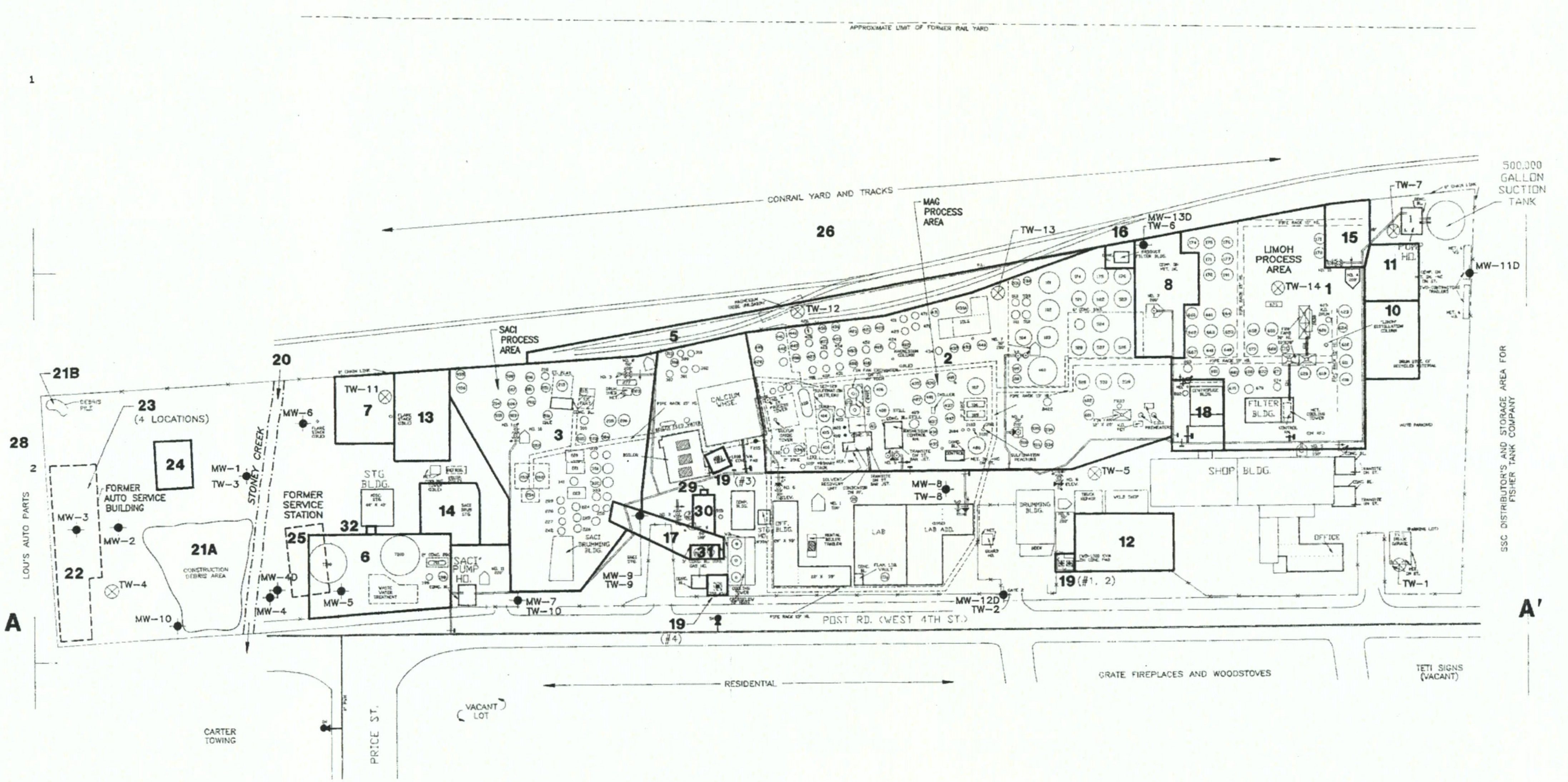
PFE ORIGINAL



Legend

Data Sources:
Vector Data: Digitized data from Field mark-up
Base Map: Fluor Daniels GTI, Inc. 1997.
Remedial Investigation Report for the Witco Trainer Plant. Marlton, New Jersey. November 21.

Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

0 70 140
Feet

Stoney Creek Technologies
Trainer, Delaware County, Pennsylvania

Figure 3
Site Layout Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 12/21/2011

File: Y:\EPA_Region_III\StoneyCreekTech\mxd\Site_Layout.mxd, 12/21/2011 10:18:52 AM, zieglera

PFE ORIGINAL

Legend

☒ Monitoring Well Sample (MW)

Data Sources:
Basemap: Digitized data from field map mark-up
Imagery: Bing Imagery Service

Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

N

0 75 150
Feet

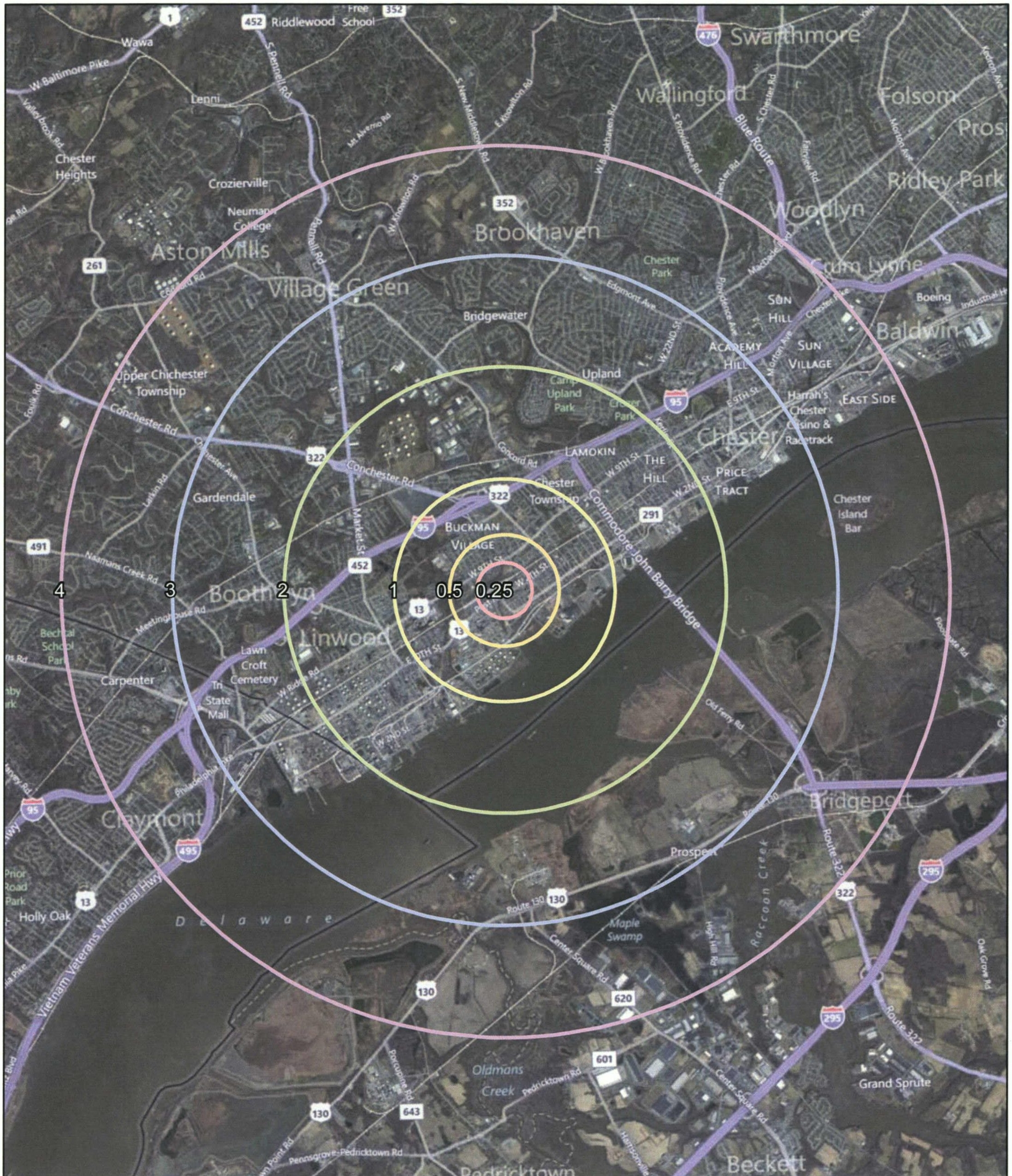
Stoney Creek Technologies
Trainer, Delaware County, Pennsylvania

Figure 5
Monitoring Well Sample
Location Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 12/19/2011

WESTON SOLUTIONS

File: Y:\EPA_Region_III\StoneyCreekTech\mxd\MW_locations2.mxd, 12/19/2011 10:57:15 AM, zieglera



Legend	Data Sources:	Stoney Creek Technologies
Distance Rings (miles)	Basemap: Digitized data from field map mark-up	Trainer, Delaware County, Pennsylvania
0.0 - 0.25	Imagery: Bing Hybrid Service	**Figure 6**
0.25 - 0.50	Coordinate System: WGS_1984_Web_Mercator_Auxiliary_Sphere	4-mile Radius Map with Distance Rings
0.50 - 1.0	Projection: Mercator_Auxiliary_Sphere	TDD#: WS01-10-07-005
1.0 - 2.0	GCS_WGS_1984	Contract: EP-S3-10-05
2.0 - 3.0	Datum: D_WGS_1984	Prepared: 12/19/2011
3.0 - 4.0	N; 0 0.475 0.95 1.9 Miles	WESTON SOLUTIONS

File: Y:\EPA_Region_III\StoneyCreekTech\mxd\4mileRadius.mxd, 12/19/2011 10:26:28 AM, zieglera

Legend

- Soil Sediment Sample (SD) / Surface Water Sample (SW)
- StoneyCreek

Data Sources:
Basemap: Digitized data from field map mark-up
Imagery: ESRI Bing Map Service

Coordinate System:
WGS_1984_Web_Mercator_Auxiliary_Sphere
Projection: Mercator_Auxiliary_Sphere

GCS_WGS_1984
Datum: D_WGS_1984

N

0 75 150
Feet

Stoney Creek Technologies
Trainer, Delaware County, Pennsylvania

Figure 7
Surface Water and Sediment Sample Location Map

TDD#: WS01-10-07-005
Contract: EP-S3-10-05
Prepared: 12/20/2011

WESTON SOLUTIONS

File: Y:\EPA_Region_III\StoneyCreekTech\mxd\SW_SD_SampLocs.mxd, 12/20/2011 4:56:33 PM, zieglera

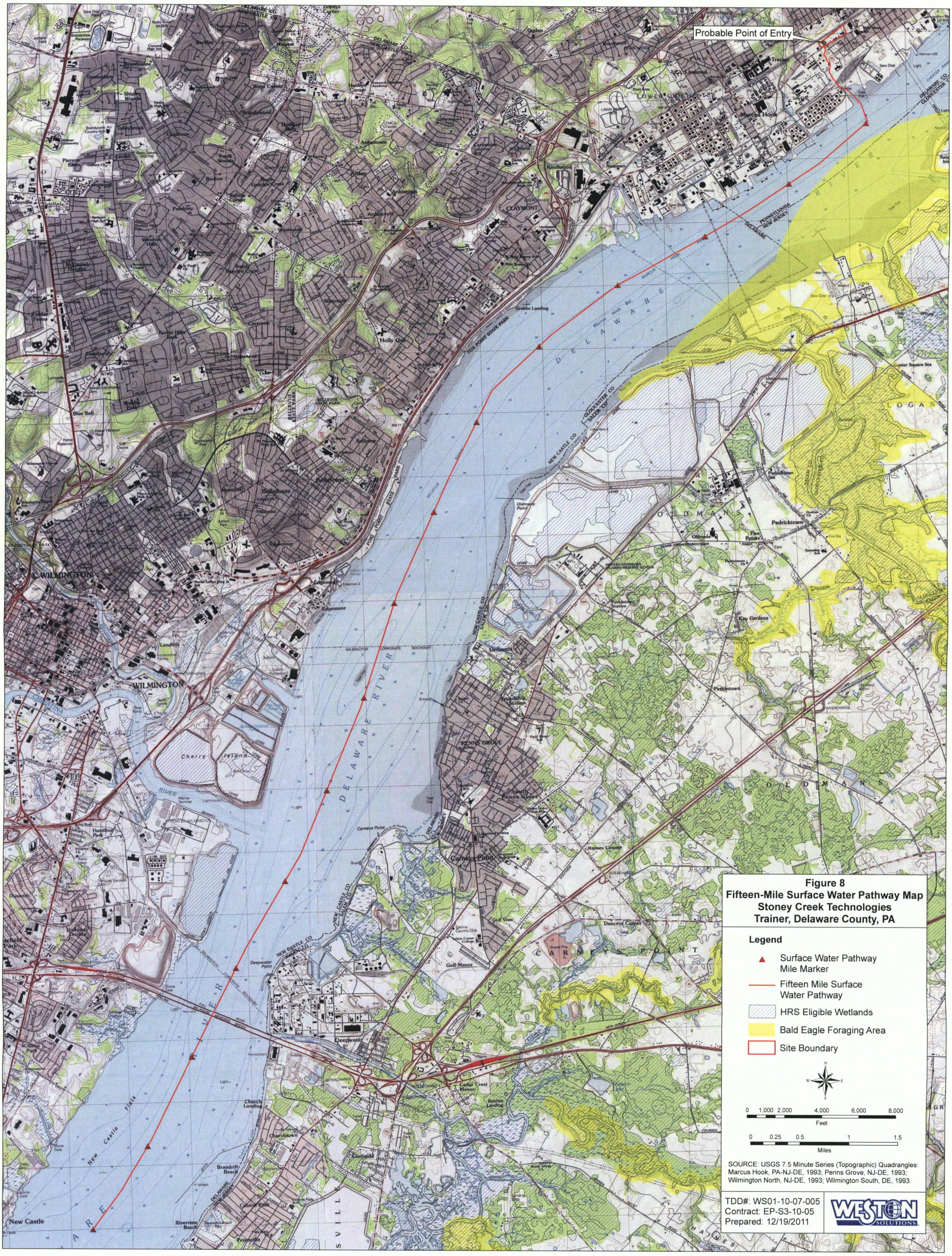


Figure 8
Fifteen-Mile Surface Water Pathway Map
Stoney Creek Technologies
Trainer, Delaware County, PA

APPENDIX B

ANALYTICAL SUMMARY TABLES

(8 Sheets)

Appendix B
Table 1
Stoney Creek Technologies Site
Site Inspection Report
Analytical Data Summary Tables of Detected Organic Compunds in Surface Soil Samples

Sample Number :				C0116		C0130		C0118		C0119		C0120		C0121		C0122		C0123		C0133		C0124	
Sampling Location :				SCT-SS-01		SCT-SS-15		SCT-SS-03		SCT-SS-04		SCT-SS-05		SCT-SS-06		SCT-SS-07		SCT-SS-08		SCT-SS-18		SCT-SS-09	
Field QC:				Background		Background						Dup of SCT-SS-06		Dup of SCT-SS-05				Dup of SCT-SS-18		Dup of SCT-SS-08			
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :				8/11/2011		8/10/2011		8/11/2011		8/11/2011		8/11/2011		8/11/2011		8/10/2011		8/11/2011		8/11/2011		8/10/2011	
Time Sampled :				13:15		14:00		11:44		12:00		11:15		11:20		16:09		10:40		10:45		15:40	
%Moisture :				17.6		30.0		30.0		18.6		44.8		53.2		28.2		6.3		6.1		30.1	
Dilution Factor :				0.99		0.99		0.99		27.3		23.1		27.3		25.0		1.0		0.99		27.3	
Volatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Methylcyclohexane	5	NL		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Semivolatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenanthrene	170	NL	—	160	J	57	J	380		ND		ND		ND		ND		ND		ND		ND	
Anthracene	170	17,000,000	n	ND		ND		68	J	ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	170	2,200,000	n	360		220	J	**1,200**		ND		ND		ND		ND		ND		ND		ND	
Pyrene	170	1,700,000	n	310		230	J	990		ND		ND		ND		270	J	ND		ND		ND	
Benzo(a)anthracene	170	2,100	c	160	J	100	J	**560**		ND		ND		ND		ND		ND		ND		ND	
Chrysene	170	210,000	c	200	J	150	J	710		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene	170	2,100	c	200	J	110	J	**820**		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	170	21,000	c	130	J	130	J	**540**		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	170	210	c	150	J	130	J	**640**		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	170	2,100	c	120	J	130	J	**540**		ND		ND		ND		ND		ND		ND		ND	
Dibenzo(a,h)anthracene	170	210	c	28	J	ND		**160**	J	ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene	170	NL	—	110	J	130	J	**520**		ND		ND		ND		ND		ND		ND		ND	

Sample Number :				C0116		C0130		C0125		C0109		C0127		C0128		C0129		C0130		C0131		C0132	
Sampling Location :				SCT-SS-01		SCT-SS-15		SCT-SS-10		SCT-SB-10		SCT-SS-12		SCT-SS-13		SCT-SS-14		SCT-SS-15		SCT-SS-16		SCT-SS-17	
Field QC:				Background		Background																	
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :				8/11/2011		8/10/2011		8/10/2011		8/10/2011		8/11/2011		8/11/2011		8/11/2011		8/10/2011		8/10/2011		8/10/2011	
Time Sampled :				13:15		14:00		15:35		16:00		12:30		12:35		12:20		14:00		14:45		15:10	
%Moisture :				17.6		30.0		9.9		6.2		28.0		20.3		34.9		30.0		4.4		3.0	
Dilution Factor :				0.99		0.99		0.98		0.99		30.0		1.0		30.0		0.99		27.3		25.0	
Volatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Methylcyclohexane	5	NL		ND		ND		ND		ND		ND		ND		ND		ND		5.7		ND	
Semivolatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Naphthalene	170	18,000	c	ND		ND		ND		ND		ND		ND		ND		ND		ND		**1,200**	J
Acenaphthene	170	3,300,000	n	ND		ND		ND		ND		ND		ND		ND		ND		ND		**1,600**	J
Fluorene	170	2,200,000	n	ND		ND		ND		ND		ND		ND		ND		ND		ND		**890**	J
Phenanthrene	170	NL	—	160	J	57	J	39	J	59	J	ND		120	J	ND		57	J	**970**	J	**3,100**	J
Anthracene	170	17,000,000	n	ND		ND		ND		ND		ND		ND		ND		ND		ND		**1,000**	J
Fluoranthene	170	2,200,000	n	360		220	J	120	J	110	J	ND		180	J	ND		220	J	**1,300**	J	**4,500**	
Pyrene	170	1,700,000	n	310		230	J	120	J	160	J	ND		180	J	ND		230	J	**1,300**	J	**3,500**	J
Benzo(a)anthracene	170	2,100	c	160	J	100	J	49	J	39	J	ND		81	J	ND		100	J	ND		**890**	J
Chrysene	170	210,000	c	200	J	150	J	64	J	51	J	ND		110	J	ND		150	J	ND		**850**	J
Benzo(b)fluoranthene	170	2,100	c	200	J	110	J	88	J	42	J	ND		110	J	ND		110	J	ND		ND	
Benzo(k)fluoranthene	170	21,000	c	130	J	130	J	67	J	38	J	ND		70	J	ND		130	J	ND		ND	
Benzo(a)pyrene	170	210	c	150	J	130	J	70	J	61	J	ND		90	J	ND		130	J	ND		ND	
Indeno(1,2,3-cd)pyrene	170	2,100	c	120	J	130	J	93	J	66	J	ND		64	J	ND		130	J	ND		ND	
Dibenzo(a,h)anthracene	170	210	c	28	J	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene	170	NL	---	110	J	130	J	85	J	110	J	ND		89	J	ND		130	J	ND		ND	

Notes:
ug/Kg = Micrograms per kilogram
Bolded value indicates elevated concentration; 3X background or above background CRQL
c = Cancer effects at a target risk of 1.0E-06
CRQL = Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
n = Noncancer effects, at a target hazard quotient of 0.1
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
RSL - U.S. EPA Regional Screening Levels for industrial soil

Appendix B
Table 2
Stoney Creek Technologies Site
Site Inspection report
Analytical Data Summary Tables of Detected Inorganics in Surface Soil Samples

PFE ORIGINAL

Sample Number :				MC0116		MC0130		MC0118		MC0119		MC0120		MC0121		MC0122		MC0123		MC0133		MC0124	
Sampling Location :				SCT-SS-01		SCT-SS-15		SCT-SS-03		SCT-SS-04		SCT-SS-05		SCT-SS-06		SCT-SS-07		SCT-SS-08		SCT-SS-18		SCT-SS-09	
Field QC :				Background		Background						Dup of SCT-SS-06		Dup of SCT-SS-05				Dup of SCT-SS-18		Dup of SCT-SS-08			
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :				08/11/2011		08/10/2011		08/11/2011		08/11/2011		08/11/2011		08/11/2011		08/10/2011		08/11/2011		08/11/2011		08/10/2011	
Time Sampled :				13:15		14:00		11:44		12:00		11:15		11:20		16:09		10:40		10:45		15:40	
%Solids :				77.0		70.4		67.7		79.9		52.5		78.5		79.4		87.2		79.0		72.4	
Dilution Factor :				1.0		1.0		1.0		1.0 / 10.0		1.0		1.0 / 10.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	20	99,000	n	6,270		10,700		5,080		4,670		7,090		9,040		5,500		372		443		5,370	
ANTIMONY	6	41	n	0.98	J	0.72	J	1.2	J	4.4	J	2.8	J	3.7	J	1.4	J	ND		ND		0.88	J
ARSENIC	1	1.6	c	6.4		5.5		2.7		7.1		5.3		6.0		2.8		0.95	J	0.94		2.5	
BARIUM	20	19,000	n	51.2		102		112		135		186		194		117		1.5	J	1.4	J	135	
BERYLLIUM	0.5	200	n	0.52		0.99		0.60		0.77		0.76		1.10		0.37	J	ND		ND		0.40	J
CADMIUM	0.5	80	n	0.19	J	0.40	J	**1.0**		**1.9**		**3.9**		**3.9**		1.0	J	0.03	B	0.02	B	1.1	J
CALCIUM	500	NL	n	787	B	4,260		4,300	J	12,100	J	11,900	J	12,500	J	4,650		185	B	137	B	**44,100**	
CHROMIUM	1	5.6*	c	12.7		26.4	J	25		65.7		35		55.9		28.4	J	2.4		3		32.2	J
COBALT	5	30	n	4	J	6.6	J	5.3	J	8		8.9		9.8		7.4		ND		ND		6.5	
COPPER	2.5	4,100	n	18.1		23.3		63.1		61.2		**125**		**126**		38.3		1.3	J	1.3	J	43.5	
IRON	10	72,000	n	11,800		17,500		14,400		36,700 +		24,200		30,400 +		16,200		1,440		1,690		13,500	
LEAD	1	800	n	86.8		37		102		194		**286**		**338**		155		2	B	2		107	
MAGNESIUM	500	NL	n	909		3,110		3,290		4,680		4,740		4,690		4,280		37	B	28	B	**23,700**	
MANGANESE	1.5	2,300	n	215	J	258		192	J	370	J	695	J	851	J	194		2	J	2	J	199	
MERCURY	0.1	4.3	n	0.16		0.18	L	0.14	J	0.35		0.19		0.20		0.11	J	ND		ND		0.08	J
NICKEL	4	2,000	n	9.5		14.7	J	21.8		28.9		**44.3**		**47.7**		24.4	J	0.21	J	0.17	J	25.8	J
POTASSIUM	500	NL	n	218	J	1,740		1,160		1,550		1,740		1,740		2,630		ND		13	B	2,470	
SELENIUM	3.5	510	n	0.64	J	0.84	J	0.70	J	1.0	J	0.82	J	0.51	J	1.0	J	ND		ND		0.70	J
SILVER	1	510	n	0.32	J	0.55	J	0.43	J	0.76	J	**1.9**		**1.9**		0.87	J	ND		ND		0.71	J
SODIUM	500	NL	n	178	B	552	J	295	J	355	J	360	J	283	J	209	B	120	B	125	B	477	J
VANADIUM	5	520	n	41.4	J	33.3		24.3	J	30.5	J	34.0	J	35.1	J	35.8		2.7	J	3.2	J	25.6	
ZINC	6	31,000	n	43.9		98.5	J	259		295		**720**		**695**		171	J	7.7		5.7		247	J

Sample Number :				MC0116		MC0130		MC0125		MC0109		MC0126		MC0127		MC0128		MC0129		MC0131		MC0132	
Sampling Location :				SCT-SS-01		SCT-SS-15		SCT-SS-10		SCT-SB-10		SCT-SS-11		SCT-SS-12		SCT-SS-13		SCT-SS-14		SCT-SS-16		SCT-SS-17	
Field QC :				Background		Background																	
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :				08/11/2011		08/10/2011		08/10/2011		08/10/2011		08/10/2011		08/11/2011		08/11/2011		08/11/2011		08/10/2011		08/10/2011	
Time Sampled :				13:15		14:00		15:35		16:00		15:30		12:30		12:35		12:20		14:45		15:10	
%Solids :				77.0		70.4		90.4		93.6		82.4		64.9		79.9		66.4		93.2		96.1	
Dilution Factor :				1.0		1.0		1.0		1.0		1.0		1.0 / 10.0		1.0		1.0 / 10.0		1.0 / 10.0		1.0	
ANALYTE	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	20	99,000	n	6,270		10,700		4,280		963		7,260		4,450		6,380		4,860		12,900		3,370	
ANTIMONY	6	41	n	0.98	J	0.72	J	1.4	J	0.18	J	0.68	J	7.4		2.1	J	4.3	J	0.58	J	0.22	J
ARSENIC	1	1.6	c	16.40		5.5		3.4		1.3		3.80		6.7		**88.7**		9.7		3.5		0.49	J
BARIUM	20	19,000	n	51.2		102		510		83.1		101		578		135		170		**3,420 +**		95.1	
BERYLLIUM	0.5	200	n	0.52		0.99		0.37	J	0.10	J	0.67		1.20		0.57		1.0		1.4		0.18	J
CADMIUM	0.5	80	n	0.19	J	0.40	J	0.60	J	0.11	J	0.35	J	**4.30**		**0.68**		**4.4**		**3.0**	J	0.22	J
CALCIUM	500	NL	n	787	B	4,260		16,000		941	B	3,700		**28,700**	J	973	B	**27,400**	J	**47,900**		23,300	
CHROMIUM	1	5.6*	c	12.7		26.4	J	195	J	6.6	J	61.0	J	83		111		102		14.2	J	11.8	J
COBALT	5	30	n	4.0	J	6.6	J	3.7	J	0.9	J	5.9		10.8		6.6		20.8		3.3	J	3.5	J
COPPER	2.5	4,100	n	18.1		23.3		34.1		6.9		19.7		**198**		35		**343**		19.1		13.6	
IRON	10	72,000	n	11,800		17,500		17,000		3,590		17,200		**79,700 +**		18,500		45,500 +		9,710		7,460	
LEAD	1	800	n	86.8		37.0		44.5		9.9		25.1		**309**		126		96.2		55.8		8.6	
MAGNESIUM	500	NA	n	909		3,110		4,140		512		2,860		2,950		1,640		6,140		**19,200**		3,300	
MANGANESE	1.5	2,300	n	215	J	258		1,200		31.7		563		647	J	194	J	369	J	**1,710**		89.2	
NICKEL	4	2,000	n	9.5		14.7	J	26.5	J	3.1	J	18.0	J	41.6		22.8		**65.8**		12.7	J	10.3	J
POTASSIUM	500	NL	n	218	J	1,740		895		230	J	1,650		553		731		808		1,040		2,300	
SELENIUM	3.5	510	n	0.64	J	0.84	J	0.94	J	0.36	J	1.1	J	ND		0.58	J	0.46	J	1.3	J	0.55	J
SILVER	1	510	n	0.32	J	0.55	J	0.87	J	0.16	J	0.54	J	**3.10**		0.59	J	**2.20**		0.56	J	0.20	J
SODIUM	500	NL	n	178	B	552	J	404	J	245	B	375	J	538		203	B	513	J	606		401	J
VANADIUM	5	520	n	41.4	J	33.3		43.0		6.7		32.5		26.5	J	112	J	28.8	J	16.4		15.6	
ZINC	6	31,000	n	43.9		98.5	J	133	J	35.2	J	68.0	J	**963**		182		**888**		125	J	34.9	J

Notes:
mg/Kg = Milligrams per kilogram
+ = Result reported from diluted analysis
* = Value shown is for hexavalent chromium
Bolded value indicates elevated concentration; 3X background or above background CRQL
Shaded value indicates concentration above RSL
B = Result not detecetd substantially above concentration detected in laboratory or field blanks.
c = Cancer effects at a target risk of 1.0E-06
CRQL = Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
L = Reported value is biased low; actual value is expected to be higher
n = Noncancer effects, at a target hazard quotient of 0.1
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
RSL - U.S. EPA Regional Screening Levels for industrial soil

Appendix B
Table 3
Stoney Creek Technologies Site
Site Inspection Report
Analyitcal Data Summary Tables of Detected Organic Compounds in Subsurface Soil Samples

Sample Number :				C0104		C0106		C0018		C0019RE		C0021		C0024RE		C0025RE		C0028		C0029RE	
Sampling Location :				SCT-SB-01		SCT-SB-15		SCT-SB-02-008		SCT-SB-02-009		SCT-SB-02-018		SCT-SB-03-028		SCT-SB-03-128		SCT-SB-24-041		SCT-SB-03-054	
Field QC:				Background		Background								Dup of SCT-SB-03-128		Dup of SCT-SB-03-028					
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Depth in Inches:				18-36"		18-36		30-55"		6-24"		3-35"		6-30"				48-60"		14-36"	
Date Sampled :				8/11/2011		8/10/2011		10/21/2010		10/20/2010		10/21/2010		10/25/2010		10/25/2010		10/25/2010		10/27/2010	
Time Sampled :				13:20		14:10		08:30		08:25		11:40		09:00		09:00		13:35		13:40	
%Moisture :				10.4		19.1		19.5		13.5		14.3		19.3		18		18.1		19	
Dilution Factor :				0.91		0.93		0.81/500.8		0.82		0.81/480		1.17/51.3/103.0		0.89/48.7/97.4		0.87		0.94/54.3	
Volatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acetone	10	63,000,000	n	ND		ND		180		37		87		ND		ND		23		250	J
Carbon Disulfide	5.0	370,000	n	ND		ND		ND		ND		4.2	J	6.5	J	ND		ND		ND	
cis-1,2-Dichloroethene	5.0	200,000	n	ND		ND		ND		ND		ND		16		9.0		ND		ND	
Cyclohexane	5.0	2,900,000	n	ND		ND		ND		ND		ND		5,600	J	16,000 +		ND		8,500 +	
Benzene	5.0	5,400	c	ND		ND		5.9	L	ND		ND		710 +		370 +		ND		82	L
Trichloroethene	5.0	10,000	c	ND		ND		ND		ND		ND		9.7		10		ND		ND	
Methylcyclohexane	5.0	NL	—	ND		ND		71,000 +	J	9.0		58,000 +	J	21,000 +	J	12,000 +	J	ND		16	
Toluene	5.0	4,500,000	n	ND		ND		28		ND		10	K	61		47		ND		8.0	
Tetrachloroethene	5.0	2,600	c	ND		ND		ND		ND		ND		11		ND		ND		26	
Ethylbenzene	5.0	27,000	c	ND		ND		ND		ND		ND		55		46		8.5		17	
o-Xylene	5.0	300,000	n	ND		ND		69		ND		ND		4,700 +		3,400 +		ND		95	
m,p-Xylene	5.0	250,000*	n	ND		ND		ND		ND		ND		3,900 +		3,400 +		37		78	
Isopropylbenzene	5.0	1,100,000	n	ND		ND		ND		ND		ND		130		81		130		82	

Sample Number :				C0104		C0106		C0018		C0019		C0109		C0021		C0024		C0025		C0026		C0029	
Sampling Location :				SCT-SB-01		SCT-SB-15		SCT-SB-02-008		SCT-SB-02-009		SCT-SB-10		SCT-SB-02-018		SCT-SB-03-028		SCT-SB-03-128		SCT-SB-24-041		SCT-SB-03-054	
Field QC:				Background		Background										Dup of SCT-SB-03-128		Dup SCT-SB-03-028					
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Depth:				18-36"		18-36"		30-55"	n	6-24"		18-36"		3-35"		6-30"		6-30"		48-60"		14-36"	
Date Sampled :				8/11/2011		8/10/2011		10/21/2010		10/20/2010		8/10/2011		10/21/2010		10/25/2010		10/25/2010		10/25/2010		10/27/2010	
Time Sampled :				13:20		14:10		08:30		08:25		16:00		11:40		09:00		09:00		13:35		13:40	
%Moisture :				10.4		19.1		19.5		13.5		6.2		14.3		19.3		18		18.1		19	
Dilution Factor :				0.99		0.99		1.0		1.0		0.99		1.0		10.0		10.0		1.0		9.9	
Semivolatile Compound	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Naphthalene	170	18,000	c	ND		ND		ND		ND		ND		ND		ND		ND		ND		800	J
2-Methylnaphthalene	170	410,000	n	ND		ND		770		40	J	ND		78	J	950	J	790	J	200	J	1,600	J
Fluorene	170	2,200,000	n	ND		ND		200	J	40	J	ND		ND		ND		ND		40	J	ND	
Phenanthrene	170	NL	—	ND		41	J	350		130	J	59	J	130	J	400	J	220	J	76	J	ND	
Fluoranthene	170	2,200,000	n	ND		110	J	ND		ND		110		ND		980	J	630	J	ND		ND	
Pyrene	170	1,700,000	n	ND		86	J	ND		ND		160		ND		1,700	J	1,200	J	ND		ND	
Benzo(a)pyrene	170	210	c	ND		58	J	ND		ND		39		ND		420	J	ND		ND		ND	
Chrysene	170	210,000	c	ND		65		ND		ND		51		ND		ND		ND		ND			
Benzo(b)flouranthene	170	2,100	c	ND		69		ND		ND		42		ND		ND		ND		ND			
Benzo(k)flouranthene	170	21,000	c	ND		55		ND		ND		38		ND		ND		ND		ND			
Benzo(a)pyrene	170	210	c	ND		58		ND		ND		61		ND		ND		ND		ND			
Indeno(1,2,3-cd)pyrene	170	2,100	c	ND		65	J	ND		ND		66	J	ND		400	J	480	J	ND		ND	
Benzo(g,h,i)perylene	170	NL	c	ND		60	J	51	J	73	J	110	J	68	J	800	J	960	J	66	J	ND	

Notes:
ug/Kg = Micrograms per kilogram
Bolded value indicates elevated concentration; above background CRQL
+ = Result reported from diluted analysis
* = Value for m-Xylene
c = Cancer effects at a target risk of 1.0E-06
CRQL = Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
K = Reported value is biased high; actual value is expected to be lower
L = Reported value is biased low; actual value is expected to be higher
n = Noncancer effects, at a target hazard quotient of 0.1
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
RSL - U.S. EPA Regional Screening Levels for Industrial soil

Appendix B
Table 4
Stoney Creek Technologies Site
Site Inspection Report

Sample Number:						MC0108		MC0018		MC0019		MC0021		MC0024		MC0025		MC0026		MC0029	
Sampling Location:				SCT-SB-01		SCT-SB-15		SCT-SB-02-008		SCT-SB-02-009		SCT-SB-02-018		SCT-SB-03-028		SCT-SB-03-128		SCT-SB-24-041		SCT-SB-03-054	
Field QC				Background		Background								Dup of SCT-SB-03-128		Dup of SCT-SB-03-028					
Matrix:				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units:				mg/Kg		mg/Kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Depth:																					
Date Sampled:						08/10/2011		10/21/2010		10/20/2010		10/21/2010		10/25/2010		10/25/2010		10/26/2010		10/27/2010	
Time Sampled:						14:10		8:30		8:25		11:40		9:00		9:00		13:35		13:40	
%Solids:						80.9		77.0		84.0		82.0		81.0		81.0		80.0		82.0	
Dilution Factor:						1.0		1.0		1.0		1.0		1.0		1.0/10		1.0		1.0	
ANALYTE	CRQL	RSL		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	20	99,000	n	6,180		11,700		13,700		7,360		13,400		11,600		10,200		6,390		8,300	
ARSENIC	1	1.6	c	2.5		9.7		6.3	B	8.2		4.9		5.3		6.0		4.3		8.9	
BARIUM	20	19,000	n	59.1		226		646	J	53.2	J	199	J	563	J	495	J	63.5	J	**903**	J
BERYLLIUM	0.5	200	n	0.71		1.1		0.43	J	0.38	J	0.25	J	0.73		1.2		0.24	J	0.56	J
CADMIUM	0.5	80	n	0.15	J	0.31	J	0.45	J	**1.4**		0.82		0.46	J	0.49		0.37	J	**0.83**	
CALCIUM	500	NL	n	310	B	7,080		3,660		2,040		5,290		13,800		**43,500 +**		2,420		**22,100**	
CHROMIUM	1	5.6*	c	8.7		18.8	J	**277**		27.7		36.8		19.4		17.6		14.3		52.3	
COBALT	5	30	n	5.5		7.6		3.9	J	5.2	J	6.0	J	5.3	J	3.0	J	2.5	J	5.0	J
COPPER	3	4,100	n	18.7		23.5		7.5		19.3		22.1		12.1		10.3		10.5		29.9	
IRON	10	72,000	n	8,530		18,100		16,000		19,900		22,700		16,300		12,800		10,700		15,100	
LEAD	1	800	n	18.5		28.3		13.4	J	27.7	J	13.5	J	25.2	J	18.7	J	71.3	J	79.2	J
MAGNESIUM	500	NL	n	749		2,830		2,120		2,530		5,530		3,020		7,700		1,210		4,090	
MANGANESE	2	2,300	n	410	J	351		106	J	94.9	J	185	J	378	J	436	J	103	J	236	J
NICKEL	4	2,000	n	6.4		10.8	J	30.1		13.9		22.2		8.6		7.3		5.8		11.7	
POTASSIUM	500	NL	n	124	J	482	J	**3,230**		1,040		**3,270**		813		1,220		1,710		853	
SELENIUM	4	510	n	0.44	J	0.88	J	2.1	J	**4.2**		3.6	J	3.0	J	1.9	J	ND		**4.4**	
SILVER	1	510	n	0.14	J	0.44	J	ND		0.49	J	ND		ND		ND		ND		ND	
SODIUM	500	NL	n	139	B	388	J	136	J	ND	UL	51.3	J	205	J	526		ND	UL	**2,030**	
VANADIUM	5	520	n	13.6	J	28.1		**144**		28.8		36.1		23.7		21.7		18.7		24.7	
ZINC	6	31,000	n	35.7		54.9	J	36.8		39.2		56.0		43.0		31.3		48.4		90.8	

Notes:
mg/Kg = Milligrams per kilogram
+ = Result reported from diluted analysis
* = Value shown is for hexavalent chromium
Bolded value indicates elevated concentration; 3X background or above background CRQL
Shaded value indicates concentration above RSL
B = Result not detecetd substantially above concentration detected in laboratory or field blanks
c = Cancer effects at a target risk of 1.0E-06
CRQL = Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
n = Noncancer effects, at a target hazard quotient of 0.1
ND = Not detected above CRQL
NL = No listed value
UL = Not detected; quantitation limit is probably higher
Q = Qualifier
RSL - U.S. EPA Regional Screening Levels for industrial soil

Appendix B
Table 5
Stoney Creek Technologies Site
Site Inspection Report
Analytical Data Summary Tables for Detected Compounds in Waste Samples

Sample Number :		MC0134		MC0135	
Sampling Location :		SCT-WS-01		SCT-WS-02	
Matrix :		Waste		Waste	
Units :		mg/Kg		mg/Kg	
Date Sampled :		08/11/2011		08/11/2011	
Time Sampled :		10:00		10:10	
%Solids :		72.9		74.8	
Dilution Factor :		1.0		1.0 / 5.0	
ANALYTE	CRQL	Result	Q	Result	Q
ALUMINUM	20	9,880		2,760	
ANTIMONY	6	1.3	J	1.4	J
ARSENIC	1	42.4		7.5	
BARIUM	20	132		516	
BERYLLIUM	0.5	2.4		0.78	
CADMIUM	0.5	0.46	J	1.2	
CALCIUM	500	12,700		50,500	
CHROMIUM	1	25.9	J	49.0	J
COBALT	5	6.6		4.6	J
COPPER	2.5	21.4		60.5	
IRON	10	18,800		25,100	
LEAD	1	19.0		35.3	
MAGNESIUM	500	37,000		24,900	
MANGANESE	1.5	70.0		175	
MERCURY	0.1	0.07	J	5.50 +	
NICKEL	4	19.3	J	23.2	J
POTASSIUM	500	625		1,060	
SELENIUM	3.5	2.8	J	1.7	J
SILVER	1	0.37	J	0.73	J
SODIUM	500	764		804	
THALLIUM	2.5	0.69	B	ND	
VANADIUM	5	65.4		16.8	
ZINC	6	601		381	
CYANIDE	0.5	0.26	J	0.16	J

Sample Number :		C0134		C0135	
Sampling Location :		SCT-WS-01		SCT-WS-02	
Matrix :		Waste		Waste	
Units :		ug/Kg		ug/Kg	
Date Sampled :		8/11/2011		8/11/2011	
Time Sampled :		10:00		10:10	
%Moisture :		27.7		23.4	
Dilution Factor :		0.90		0.92/118	
Volatile Compound	CRQL	Result	Q	Result	Q
Methylcyclohexane	5.0	ND		28,000+	K
1,2-Dichloropropane	5.0	ND		10	L
Isopropylbenzene	5.0	ND		9.2	

Notes:

mg/Kg = Milligrams per kilogram

ug/Kg = Micrograms per kilogram

+ = Result reported from diluted analysis

B = Result not detecetd substantially above concentration detected in laboratory or field blanks.

CRQL = Contract-required quantitation limit

J = Reported value is estimated; actual value may be higher or lower

K = Reported value is biased high; actual value is expected to be higher

L = Reported value is biased low; actual value is expected to be higher

ND = Not detected above CRQL

Q = Qualifier

PFE ORIGINAL

Appendix B
Table 6
Stoney Creek Technologies Site
Site Inspection Report

Sample Number :			C0144		C0145		C0146		C0147		C0148		C0150	
Sampling Location :			SCT-MW-05		SCT-MW-06		SCT-MW-21		SCT-MW-23		SCT-MW-25		SCT-MW-27	
Field QC:													Background	
Matrix :			Water		Water		Water		Water		Water		Water	
Units :			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			8/09/2011		8/09/2011		8/10/2011		8/09/2011		8/09/2011		8/09/2011	
Time Sampled :			10:46		09:30		14:20		08:56		09:55		12:36	
pH :			≤2.0		≤2.0		≤2.0		≤2.0		≤2.0		≤2.0	
Dilution Factor :			1.0		1.0		1.0		1.0/2.0		1.0/10.0		1.0	
Volatile Compound	CRQL	MCL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
cis-1,2-Dichloroethene	5.0	70	ND		ND		ND		**100**		**180+**		ND	
Cyclohexane	5.0	NL	ND		ND		ND		**67**		**72**		ND	
Benzene	5.0	5	ND		ND		3.6	J	**200+**		**430+**		ND	
Trichloroethene	5.0	5	ND		ND		ND		1.8	J	1.8	J	ND	
Methylcyclohexane	5.0	NL	ND		ND		ND		1.8	J	1.2	J	ND	
Toluene	5.0	1,000	ND		ND		ND		**10**		**15**		ND	
2-Hexanone	10	NL	ND		ND		ND		ND		**18**		ND	
Ethylbenzene	5.0	NL	ND		ND		ND		**17**		**5.4**		ND	
o-Xylene	5.0	10,000*	ND		ND		ND		**120**		**56**		ND	
m,p-Xylene	5.0	10,000*	ND		ND		ND		**92**		**43**		ND	
Isopropylbenzene	5.0	NL	ND		ND		ND		**14**		3.7	J	ND	
Semivolatile Compound	CRQL	MCL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	5	NL	ND		ND		ND				**23**		ND	
Naphthalene	5	NL	ND		ND		ND		**5.1**		**5.1**		ND	

Sample Number :			MC0144		MC0145		MC0146		MC0147		MC0148		MC0150	
Sampling Location :			SCT-MW-05		SCT-MW-06		SCT-MW-21		SCT-MW-23		SCT-MW-25		SCT-MW-27	
Field QC :													Background	
Matrix :			Water		Water		Water		Water		Water		Water	
Units :			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			08/09/2011		08/09/2011		08/10/2011		08/09/2011		08/09/2011		08/09/2011	
Time Sampled :			10:46		09:30		14:20		08:56		09:55		12:36	
Dilution Factor :			1.0		1.0		1.0		1.0		1.0		1.0 / 50.0	
ANALYTE	CRQL	MCL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	20	50-200**	72.7	J	10,300	J	1,940	J	276	J	343	J	102,000	J
ANTIMONY	2	6	0.5	B	**2.1**		1.0	B	0.2	B	0.6	B	ND	
ARSENIC	1	10	3.7		6.2		5.3		3.7		3.8		6.8	
BARIUM	10	2,000	47.7		211		280		3,720		724		2,160	
BERYLLIUM	1	4	ND		1.3		ND		ND		0.2	J	11.4	
CADMIUM	1	5	ND		0.9	J	ND		ND		0.3	J	1.2	
CALCIUM	500	NL	40,300		19,000		73,500		**113,000**		39,300		32,000	
CHROMIUM	2	100	6.2	B	55.5	J	15.6	J	4.7	B	5.6	B	328	J
COBALT	1	NL	4.0		154		10.2		11.4		4.8		138	
COPPER	2	1,300	5.7	J	107	J	6.9	J	6.4	J	5.3	B	97.8	J
IRON	200	300**	2,430	J	18,800	J	8,250	J	1,530	J	1,130	J	50,600	J
LEAD	1	15	5.1		156		2.2		4.4		11.4		64.1	
MAGNESIUM	500	NL	7,870		7,870		11,500		17,700		63,100		45,400	
MANGANESE	1	50**	363		874		646		463		154		8,990 +	
NICKEL	1	NL	3.5	B	38.6		16.0		4.1	B	3.8	B	133	
MERCURY	0.2	2	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL	0.2	J
POTASSIUM	500	NL	21,100		7,150		9,980		22,300		19,300		12,800	
SELENIUM	5	50	ND		ND		ND		ND		ND		ND	
SILVER	1	100**	ND		0.4	J	ND		ND		0.1	J	0.6	J
SODIUM	500	NL	44,800		61,600		17,300		52,600		56,300		39,600	
THALLIUM	1	2	ND		0.1	B	ND		ND		0.1	B	0.8	J
VANADIUM	5	NL	3.6	J	53.0		11.0		8.2		7.2		116	
ZINC	2	5,000**	173		1,320		81.3		47.6		258		261	
CYANIDE	10	200**	ND		ND	Q	ND	UL	ND		ND		ND	

Notes:
ug/L = Micrograms per liter
+ = Result reported from diluted analysis
* = Value shown is for total xylenes
** = Secondary MCL value
Bolded value indicates concentration 3X background
Shaded value indicates concentration above MCL
B = Result not detecetd substantially above concentration detected in laboratory or field blanks.
CRDL = Contract-required detection limit
CRQL - Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
MCL = Maximum contaminant level
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
UL = Not detected; quantitation limit may be higher

Table 7
Stoney Creek Technologies Site
Site Inspection Report
Analytical Data Summary Table for Detected Inorganics in Surface Water Samples

Sample Number :			MC0136		MC0137		MC0138		MC0139		MC0140		MC0143	
Sampling Location :			SCT-SW-01		SCT-SW-02		SCT-SW-03		SCT-SW-04		SCT-SW-05		SCT-WW-01	
Field QC :					Dup. of MC0138		Dup. of MC0137							
Matrix :			Water		Water		Water		Water		Water		Water	
Units :			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			08/10/2011		08/10/2011		08/10/2011		08/10/2011		08/10/2011		08/11/2011	
Time Sampled :			10:30		10:40		11:00		11:25		11:50		08:10	
Dilution Factor :			1.0		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	WQC	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	200	NL	128	J	104	J	92	J	97	J	107	J	63	J
ANTIMONY	60	NL	ND		ND		ND		ND		ND		ND	
ARSENIC	10	150	ND		ND		ND		ND		2.9	J	3.2	J
BARIUM	200	NL	60.2	J	53.5	J	56.9	J	57.3	J	57.4	J	120	J
BERYLLIUM	5	NL	ND		ND		ND		ND		ND		ND	
CADMIUM	5	0.25	0.21	J	0.12	J	ND		ND		0.12	J	0	J
CALCIUM	5,000	NL	33,300		29,900		31,500		31,600		31,600		57,600	
CHROMIUM	10	11	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL	5.0	J
COBALT	50	NL	ND		ND		ND		ND		ND		ND	
COPPER	25	NL	ND		ND		ND		ND		ND		ND	
IRON	100	NL	870		723		758		756		774		482	
LEAD	10	2.5	4.2	J	2.9	J	3.7	J	3.4	J	3.0	J	5	J
MAGNESIUM	5,000	NL	9,490		8,710		9,130		9,200		9,200		10,100	
MANGANESE	15	NL	148		119		127		124		125		73.0	
MERCURY	0.2	0.77	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL
NICKEL	40	52	3.60	J	2.90	J	3.30	J	3.30	J	3.2	J	4.0	J
POTASSIUM	5,000	NL	2,990	J	2,770	J	2,920	J	2,950	J	2,900	J	5,700	
SELENIUM	35	5	ND		ND		ND		ND		ND		ND	
SILVER	10	NL	ND		ND		ND		ND		ND		ND	
SODIUM	5,000	NL	19,800		18,900		20,000		20,200		20,100		30,500	
THALLIUM	25	NL	ND		ND		ND		ND		ND		ND	
VANADIUM	50	NL	1.3	J	2.5	J	1.7	J	0.63	J		UL	1.1	J
ZINC	60	120	132.0		27.7	J	29.8	J	27.0	J	28.4	J	44.8	J
*CYANIDE	10	5.2	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL	ND	UL

Notes:
ug/L = Micrograms per liter
* = Value shown is for hexavalent chromium
Shaded value indicates concentration above WQC
CRQL = Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
UL = Not detected; quantitation limit may be higher
WQC - EPA National Recommended Water Quality Criter for chronic exposure in freshwater

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Appendix B
Table 8
Stoney Creek Technologies Site
Site Inspection Report
Analytical Data Summary Tables of Detected Compounds in Sediment Samples

Sample Number :			C0110		C0111		C0112		C0113		C0114	
Sampling Location :			SCT-SD-01		SCT-SD-02		SCT-SD-03		SCT-SD-04		SCT-SD-05	
Field QC:			Background		Dup of SCT-SD-03		Dup of SCT-SD-02					
					C0112		C0111					
Matrix :			Sediment		Sediment		Sediment		Sediment		Sediment	
Units :			ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :			8/10/2011		8/10/2011		8/10/2011		8/10/2011		8/10/2011	
Time Sampled :			10:30		10:40		11:00		11:25		11:50	
%Moisture :			52.8		23.4		33.7		27.1		18.3	
Dilution Factor :			0.99		1.0		1.0		0.99		23.1	
Semivolatile Compound	CRQL	Benchmark	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenanthrene	170	204	580		220	J	140	J	270		ND	
Fluoranthene	170	423	1,800		610		500		800		ND	
Pyrene	170	195	1,400		480		390		620		ND	
Butylbenzylphthalate	170	10,900	260	J	ND		ND		ND		ND	
Benzo(a)anthracene	170	108	840		270		200	J	360		ND	
Chrysene	170	166	1,000		370		310		450		ND	
Benzo(b)fluoranthene	170	27	1,400		470		400		560		ND	
Benzo(k)fluoranthene	170	240	730		300		220	J	300		ND	
Benzo(a)pyrene	170	150	930		340		280		380		ND	
Indeno(1,2,3-cd)pyrene	170	17	980		370		290		350		ND	
Dibenzo(a,h)anthracene	170	33	190	J	99	J	79	J	130	J	ND	
Benzo(g,h,i)perylene	170	170	840		320		290		300		ND	

Sample Number :			MC0110		MC0111		MC0112		MC0113		MC0114	
Sampling Location :			SCT-SD-01		SCT-SD-02		SCT-SD-03		SCT-SD-04		SCT-SD-05	
Field QC :			Background		Dup of SCT-SD-03		Dup of SCT-SD-02					
Matrix :			Sediment		Sediment		Sediment		Sediment		Sediment	
Units :			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :			08/10/2011		08/10/2011		08/10/2011		08/10/2011		08/10/2011	
Time Sampled :			10:30		10:40		11:00		11:25		11:50	
%Solids :			50.0		77.1		79.8		76.1		78.0	
Dilution Factor :			1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Benchmark	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	20	NL	8,130		4,150		3,360		5,720		3,290	
ANTIMONY	6	2	1.7	J	1.2	J	1.0	J	0.91	J	0.88	J
ARSENIC	1	9.8	6.7		1.9		2.3		2.2		1.5	
BARIUM	20	NL	145		72.2		58.7		238		101	
BERYLLIUM	0.5	NL	1.0		0.90		0.59		0.65		0.48	J
CADMIUM	0.5	0.99	2.0	J	0.61	J	0.65	J	0.88	J	0.54	J
CALCIUM	500	NL	9,310		6,760		4,120		4,580		3,350	
CHROMIUM	1	43.4	37.9	J	92.5	J	64.6	J	35.1	J	66.6	J
COBALT	5	50	9.3		5.0	J	6.0		6.0		3.7	J
COPPER	2.5	32	96.4		68.6		80.4		66.7		54.3	
IRON	10	20	20,400		24,100		20,300		14,800		15,100	
LEAD	1	35.8	198		60.4		84.3		83.8		54.3	
MAGNESIUM	500	NL	5,640		3,750		2,660		4,400		2,190	
MANGANESE	1.5	460	285		626		443		159		188	
MERCURY	0.1	0.18	0.36	L	0.14	L	0.10	J	0.12	L	0.09	J
NICKEL	4	23	42.7	J	30.3	J	43.5	J	25.6	J	28.6	J
POTASSIUM	500	NL	1,360		885		654		1,790		704	
SELENIUM	3.5	2	2.0	J	1.3	J	1.4	J	1.2	J	1.0	J
SILVER	1	1	1.1	J	0.78	J	0.97	J	0.61	J	0.64	J
SODIUM	500	NL	386	J	216	B	308	J	343	J	294	J
VANADIUM	5	NL	42.8		24.0		18.5		24.1		14.5	
ZINC	6	121	562	J	273	J	322	J	275	J	163	J
CYANIDE	0.5	0.10	0.32	J	0.14	J	0.17	J	0.19	J	ND	UL

Notes:
mg/kg = milligrams per kilogram
ug/Kg = Micrograms per kilogram
Benchmark - Region 3 Biological Assessment Team ecological screening benchmarks for freshwater
Shaded value indicates concentration above benchmark
B = Result not detecetd substantially above concentration detected in laboratory or field blanks.
CRQL - Contract-required quantitation limit
J = Reported value is estimated; actual value may be higher or lower
ND = Not detected above CRQL
NL = No listed value
Q = Qualifier
UL = Not detected; quantitation limit may be higher

APPENDIX C

PHOTO DOCUMENTATION LOG

(Six Sheets)

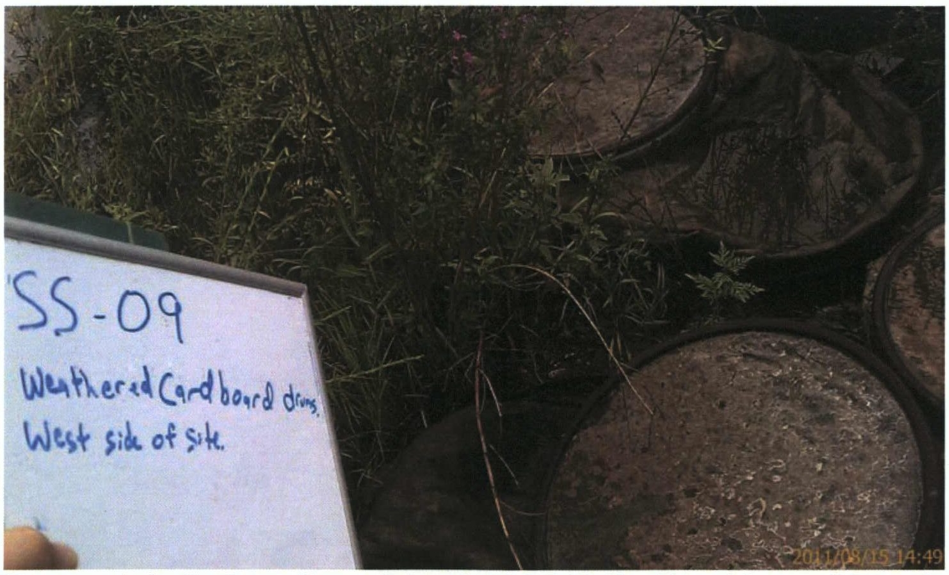
Photograph 1 – Off-site background soil sampling location, SCT-SS-01 and SCT-SB-01.

Photograph 2- Surface soil sample location SCT-SS-01 collected in boneyard.

Photograph 3 – Surface soil sample location SCT-SS-05 and duplicate SCT-SS-06 collected in boneyard.

Photograph 4 – Surface soil sample location SCT-SS-07 collected in bonyard of soil beneath asphalt.

Photograph 5 – Surface soil sample location SCT-SS-08 collected from sand pile located in boneyard.

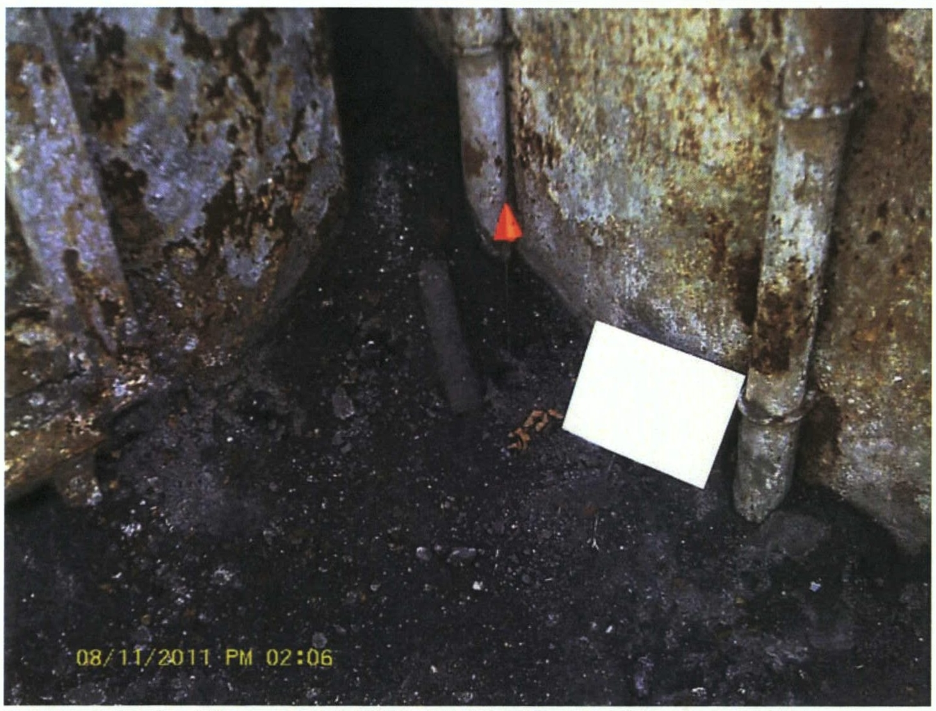


Photograph 6 – Surface soil sample location SCT-SS-09 collected from soil located underneath a drum carcass pile in the boneyard.

Photograph 7 – Surface soil sample location SCT-SS-12 collected next to an open 8 inch pipe near Tank 955 .

Photograph 8 – Surface soil sample location SCT-SS-14. Sediment collected from site surface water drainage system trench.

Photograph 9 – On-site background soil sampling location SCT-SS-15 and SCT-SB-15 collected from courtyard outside the office buildings.



Photograph 10 – Waste sample SCT-WS-01 collected of flyash material.

Photograph 11 – Waste sample SCT-WS-02 collected of flyash material in roll-off .

ATTACHMENT

CLP ANALYTICAL DATA PACKAGES